Technical Report No. 25-03

Aquatic Studies at Kensington Mine, 2024

by

Jesse W. Lindgren

February 2025

Alaska Department of Fish and Game **Habitat Section**

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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm
nanometer	nm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
inch of mercury	inHg
kilowatt	kW
Kilopascal	kPa
Nephelometric Turbidity Unit	NTU
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
etalii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
idest (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
no data	ND
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

TECHNICAL REPORT NO. 25-03

AQUATIC STUDIES AT KENSINGTON MINE, 2024

by

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P.O. Box 110024, Juneau, Alaska, 99811

February 2025

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Cover: Habitat Biologists Jesse Lindgren collecting benthic macroinvertebrate samples at Upper Johnson Creek SP2, May 2, 2024.

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Former Habitat Biologist Erika King helped lead data collection and data management. Habitat Biologists Greg Albrecht, Dylan Krull, Claire Delbecq, and Nick Jensen and former Habitat Biologist Flynn Casey assisted with field data collection. Former Fish and Wildlife Technician Ruth Roys assisted with processing benthic macroinvertebrates, and Erika processed the periphyton samples. Southeast Regional Supervisor Kate Kanouse and Dylan reviewed and edited the report, and Operations Manager Dr. Al Ott reviewed the report. Greg prepared the report for publication.

Thank you all for your contribution.

EXECUTIVE SUMMARY

Since 2011, the Alaska Department of Fish and Game Habitat Section completed the aquatic biomonitoring studies required by the U.S. Forest Service and Alaska Department of Environmental Conservation for Coeur Alaska Inc.'s Kensington Mine operations. The aquatic studies include sampling periphyton, benthic macroinvertebrates, sediment element concentrations, pink salmon spawning substrate, and adult salmon counts in Slate, Sherman, and Johnson Creeks; reference sampling sites include West Fork Slate Creek, Upper Slate Creek SP1 and SP2, Upper Johnson Creek SP2, and Upper Sherman Creek and mine-influenced sampling sites include East Fork Slate Creek, Lower Slate Creek, Upper Johnson Creek SP1, Lower Johnson Creek, and Lower Sherman Creek SP1 and SP2.

The National Weather Service (2025) reports that during 2024, the Juneau area received precipitation (197 cm) about 16% above normal and snowfall (219 cm) about 2% below normal, compared to mean values reported 1991–2020. Prior to spring macroinvertebrate sampling, the Juneau area received precipitation 0.8 cm below and temperature 1.2 ˚F above normal. Prior to summer periphyton sampling, the Juneau area received precipitation 6.8 cm above and temperature 0.7 ˚F above normal; precipitation in July before sampling was about three times higher than normal, contributing to higher streamflows.

The 2024 mean chlorophyll a density among sites ranged 0.42–3.78 mg/m^2, which were in the lower range observed since we began sampling in 2011, the lowest observed mean density at West Fork Slate Creek and Lower Slate Creek. The proportions of chlorophyll b and chlorophyll c were consistent with community composition observed in previous years. Despite environmental and stream characteristic differences (e.g., elevation, geomorphic, and hydrological) among sties, mean chlorophyll a densities generally follow a similar trend 2011–2024.

Benthic macroinvertebrate (BMI) mean densities ranged 1,434–8,659 BMI/m^2 across sites, most sites were in the upper range documented from 2011 and 2023. The mean densities of Ephemeroptera, Plecoptera, and Trichoptera (EPT) insects among sites ranged 636–4,263 EPT/m^2, the highest observed mean density at East Fork Slate Creek and Upper Slate Creek, and composed 21–87% of the samples; consistent with previous years at each site. Mean EPT densities among sites 2011–2024 follow a similar trend, despite natural variation due to environmental factors and differences in site characteristics. The number of taxa identified were consistent with previous years at each site.

Element concentrations in sediment samples were within ranges observed in previous years at each site. The data are compared with the threshold effects concentrations (TEC) and the probable effects concentrations (PEC) for inorganics in freshwater sediment guidelines published by Buchman (2008). As in previous years, within reference and mine influence sites, arsenic, cadmium, copper, nickel, and zinc concentrations were near or above the freshwater sediment guidelines, concentrations of nickel at Slate Creek and arsenic in Upper Sherman Creek often exceed the PEC at reference sites. East Fork Slate Creek sediment element concentrations of arsenic, cadmium, nickel, and zinc, found at all sites, are elevated to near or above the PEC and are generally more variable. Upper and Lower Johnson Creek had copper concentrations above the TEC while Lower Johnosn Creek also had arsenic, nickel, and zinc concentrations near or above the TEC. Upper and Lower Sherman Creek element concentrations followed a similar trend.

From August 9 to October 16, 2024, we surveyed and counted adult salmon during peak salmon runs and observed a weak pink salmon *Oncorhynchus gorbuscha* return in Slate, Johnson, and

Sherman Creeks, consistent with dominant odd-year returns observed in the Northern Southeast Inside Subregion since 2006 (Piston and Heinl 2018). Coho *O. kisutch* and chum *O. keta* salmon observations for Johnson and Slate Creeks were similar to previous years.

INTRODUCTION

The Kensington Mine is located near Berners Bay in Southeast Alaska (Figure 1), about 72 km north of Juneau and 56 km south of Haines within the City and Borough of Juneau and the Tongass National Forest (USDA 2021). The mine is owned and operated by Coeur Alaska, Inc. (Coeur), a wholly owned subsidiary of Coeur Mining, Inc.

The underground mine began producing gold concentrate for export on June 24, 2010. Tailings are disposed underground as paste backfill and in the tailings treatment facility (TTF) as slurry through a pipeline from the mill. Mine infrastructure is located in three drainages that support resident and anadromous fish: the TTF and water treatment plant in the Slate Creek drainage; the waste rock pile, camp, and mill facilities in the Johnson Creek drainage; and the waste rock pile and mine water treatment plant in the Sherman Creek drainage.

Contractors gathered aquatic data for the Kensington Mine from the late 1980s through 2005, which provided a basis for Alaska Department of Fish and Game (ADF&G) Habitat Section permit decisions, Plan of Operations monitoring requirements (Coeur 2022), the U.S. Environmental Protection Agency (USEPA) National Pollutant Elimination Discharge System Permit No. AK-005057-1, and the Alaska Department of Environmental Conservation Alaska Pollutant Discharge Elimination System (APDES) Permit No. AK0050571.[a] Monitoring and research reports published during project development and operations are in Aquatic Science Inc. (2006, 2007, 2008, 2009a, 2009b, 2009c, 2009d, 2011), Timothy and Kanouse (2012–2014), Kanouse (2015), Brewster (2016), Willson-Naranjo and Kanouse (2016), Kanouse and Zutz (2017), Zutz (2018), Albrecht (2018, 2019), Kane (2020–2022), and Lindgren and King (2023–2024).

Habitat Section staff completed the aquatic studies required annually for the Kensington Mine in Slate, Johnson, and Sherman Creeks since 2011. The APDES Permit requires sampling periphyton, benthic macroinvertebrates (BMI), and sediment. We document stream condition using chlorophyll density and composition, BMI density and community composition, and sediment element concentrations. Habitat Section staff also completed adult salmon counts required in the project Plan of Operations (Coeur 2022, USDA 2022).

PURPOSE

This technical report summarizes the 2024 aquatic study data and documents the condition of biological communities and sediments in Slate, Johnson, and Sherman Creeks near mine development and operations, satisfying the aquatic biological and sediment monitoring requirements summarized in the project Plan of Operations Amendment 1 (Coeur 2022, USDA 2022) and included in the APDES Permit AK0050571 issued on June 28, 2024.

[a] Contractor reports are listed in Zutz (2018).

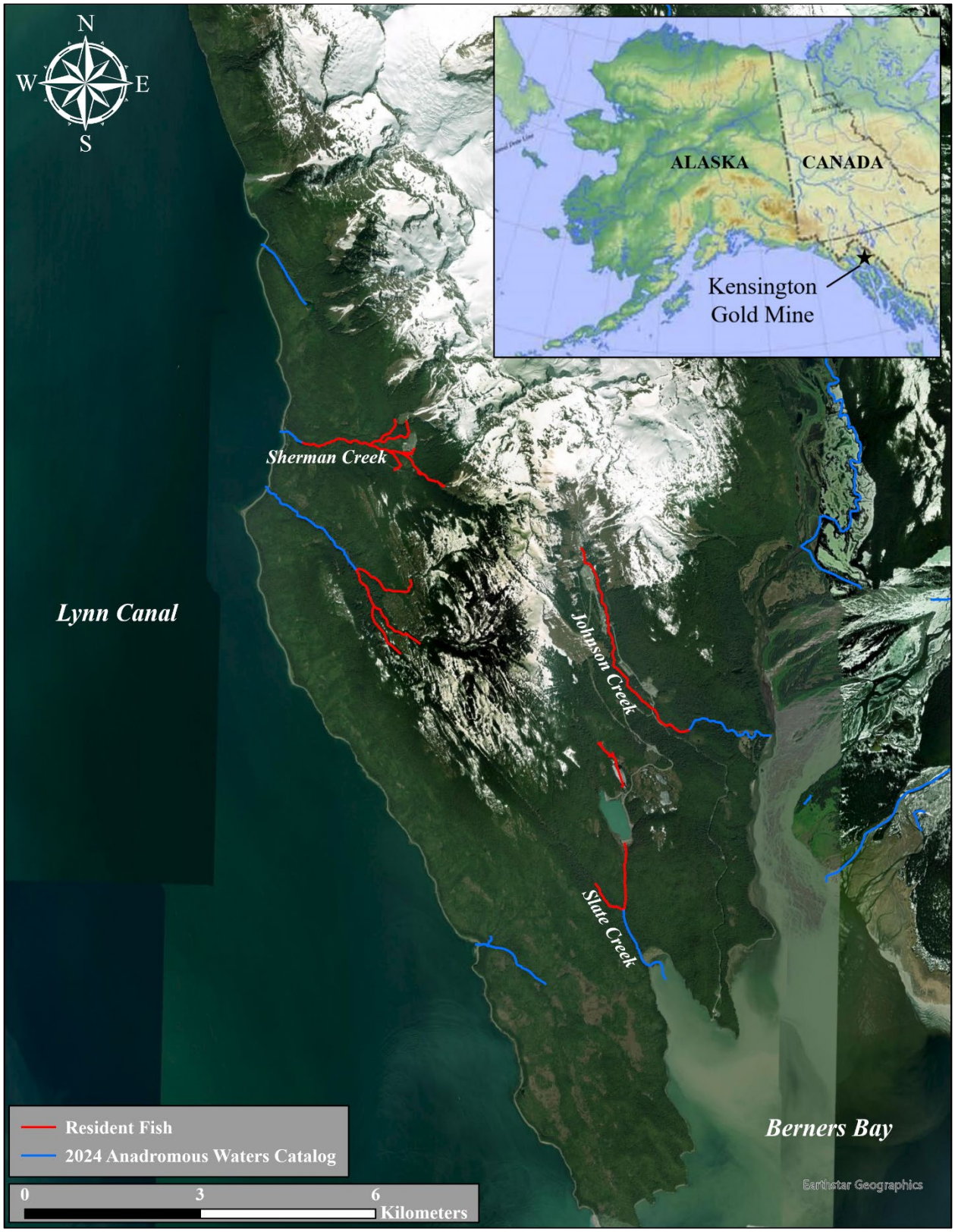

Figure 1.–Kensington Mine project area; streams adjacent to mine infrastructure and associated with aquatic studies are illustrated.

STUDY AREA

Slate Creek

Slate Creek drains a 10.5 km^2 watershed into Slate Cove on the northwest side of Berners Bay (Coeur 2022; Figure 2). Water from the TTF (Figure 3) and acid rock drainage seepage from the TTF spillway are collected and treated at TTF water treatment plants, then discharged to East Fork Slate Creek via Outfall 002; the Upper Slate Lake diversion and other pipelines transport water around the TTF collection channel into the new plunge pool in East Fork Slate Creek that was constructed in fall 2024 (Figure 4). Approximately 1 km upstream of the mouth of Lower Slate Creek, two 25 m waterfalls at the confluence of the East and West Forks preclude upstream fish migration.

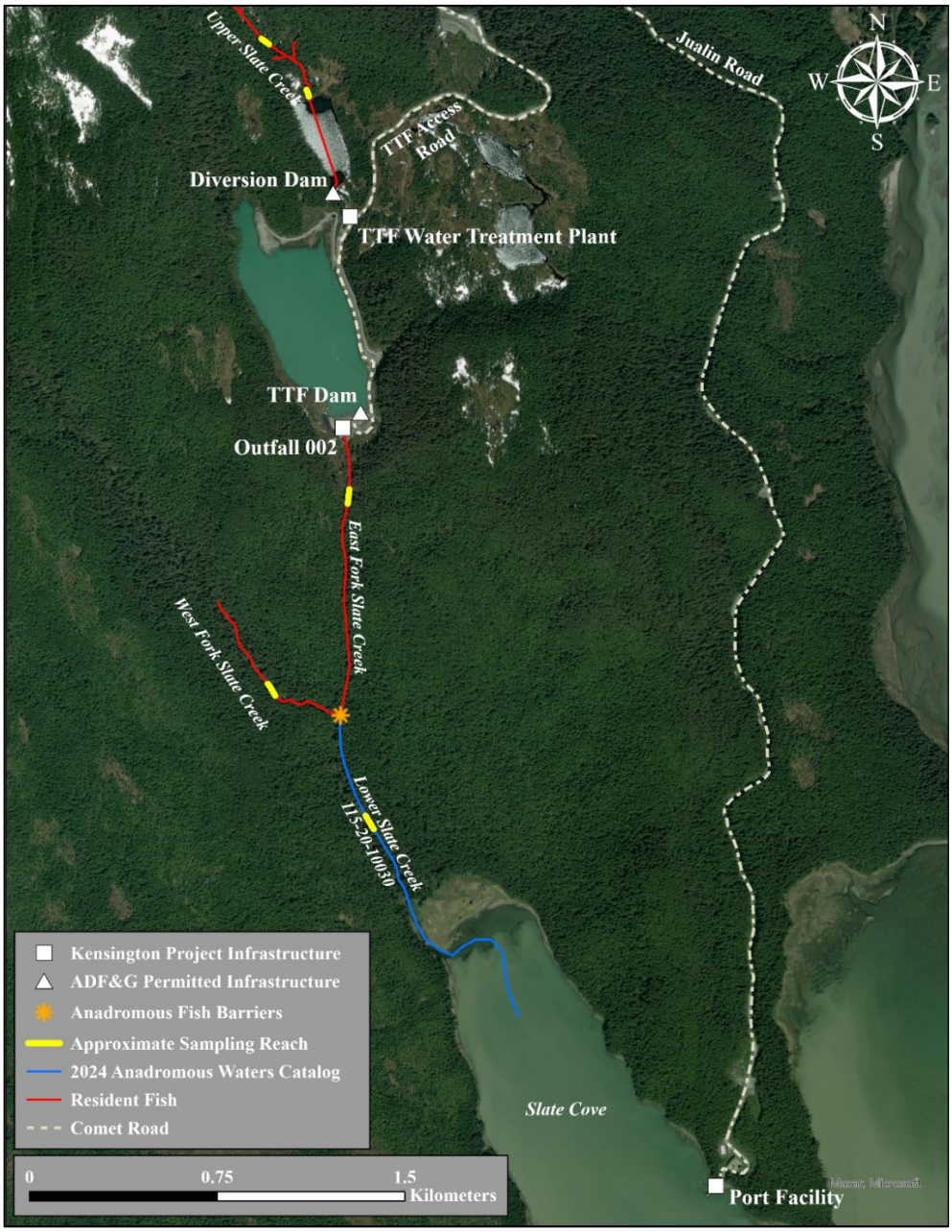

Figure 2.–Slate Creek area.

Figure 3.–Tailings treatment facility and dam (background), July 6, 2022.

Figure 4.–Tailings treatment facility Upper Slate Lake diversion line and plunge pool, October 26, 2024. Stage 4a main dam preconstruction work was underway, and diversion lines were extended downstream in East Fork Slate Creek in fall 2024. Photo courtesy of Coeur Alaska.

Lower Slate Creek

Lower Slate Creek comprises a 1.6 km reach between the stream mouth in Slate Cove and the two waterfalls at the confluence of East and West Fork Slate Creek and is a mixture of water from the East and West Forks, Outfall 002, and Upper Slate Lake. Slate Creek (Stream No. 115-20-10030) provides habitat for chum, coho, and pink salmon, and eulachon *Thaleichthys pacificus* (Giefer and Graziano 2023). We also have documented Dolly Varden *Salvelinus malma* and cutthroat trout *O. clarkii* in the drainage (Timothy and Kanouse 2012). We sample periphyton, BMIs, and sediment at Sample Point 1 (SP1; about 9 m elevation; Figure 5), a gravel-dominated medium moderate gradient (2–6%) mixed control channel type (Paustian 2010)—and count adult salmon throughout Lower Slate Creek.

Figure 5.–Lower Slate Creek SP1 during periphyton sampling, May 2, 2024.

West Fork Slate Creek

Located in a valley approximately 800 m west of the TTF, West Fork Slate Creek (Figure 6) is not influenced by mine activities; the sample reach serves to represent natural background conditions in the drainage. West Fork Slate Creek is a tributary to Lower Slate Creek and provides habitat for Dolly Varden (Timothy and Kanouse 2014). We sample periphyton and BMIs about 600 m upstream of the waterfall in Lower Slate Creek, at about 85 m elevation in a cobble-dominated small moderate gradient mixed control channel type (Paustian 2010).

Figure 6.–West Fork Slate Creek during benthic macroinvertebrate sampling, May 2, 2024.

East Fork Slate Creek

East Fork Slate Creek (Figure 7) is a tributary to Lower Slate Creek and comprises a 1 km reach between the confluence with West Fork Slate Creek and the recent stage 4a TTF dam preconstruction extent. East Fork Slate Creek discharge is dependent on Upper Slate Lake and other freshwater drainage discharges—routed through diversion pipelines bypassing the TTF—and Outfall 002[b] effluent discharge from the TTF water treatment plant.[c] In fall 2024, as part of the stage 4a dam preconstruction raise, the discharge location of Outfall 002 and other pipelines were extended about 140 m remaining about 60 upstream of the biomonitoring sampling site and a sharp bedrock curve. The stream beneath the 140 m pipeline extension was filled, reducing biological and sediment contribution from the upstream lotic source and may influence future sample results.

East Fork Slate Creek provides habitat and downstream fish passage for Dolly Varden and threespine stickleback *Gasterosteus aculeatus* (Kanouse and Zutz 2017) emigrating from Upper Slate Lake, currently via the diversion pipeline and formerly via Lower Slate Lake. We sample periphyton, BMIs, and sediment in East Fork Slate Creek 200 m downstream of the TTF and about 60 m downstream of Outfall 002, at about 198 m elevation in a small moderate gradient bedrock contained channel (Paustian 2010) where angular cobble substrate is dominant.

[b] Outfall 002 began discharging to East Fork Slate Creek in December 2010.

[c] Daily mean discharge data combining the diversion pipeline and Outfall 002 data for July was presented 2011–2018 (Albrecht 2019).

Figure 7.–East Fork Slate Creek during macroinvertebrate sampling, April 30, 2024.

Upper Slate Creek

Upper Slate Creek (Figure 8) is a tributary to Upper Slate Lake, upstream of mine influence, and the sample reach serves to represent natural background conditions in the drainage. The stream provides habitat for Dolly Varden (Albrecht 2018). We sample periphyton, BMIs, and sediment in Upper Slate Creek at SP1 within 75 m of the lake at about 229 m elevation and at SP2, approximately 325 m upstream of Upper Slate Lake at about 244 m elevation—both micro moderate gradient mixed control channel types (Paustian 2010). Site SP2 was added in 2024 as an additional reference site, because at mine closure the TTF and Upper Slate Lake will be combined and flood the long-term biomonitoring site SP1 in Upper Slate Creek (Figure 9).

Figure 8.–Upper Slate Creek SP1 during macroinvertebrate sampling, May 2, 2024.

Figure 9.–Upper Slate Creek SP2 during macroinvertebrate sampling May 2, 2024.

Johnson Creek

Johnson Creek drains a 14.6 km^2 watershed to the Lace River[d] on the northwest shore of Berners Bay (Coeur 2022; Figure 10). A 30 m waterfall about 1.5 km upstream of the Lower Johnson Creek mouth prevents upstream fish migration. Middle Johnson Creek is the 2.5 km reach between the water fall and Jualin Road Bridge #2. Upper Johnson Creek is the reach upstream of Jualin Road Bridge #2 to the headwaters, and flows adjacent to the mill facilities, camp, portals, and includes the water supply infiltration gallery which provides a secondary source of fresh water for processing.[e] Upper and Middle Johnson Creek are immediately adjacent to supporting infrastructure and the Jualin Road crosses the stream at two locations: Bridges #1 and #2.

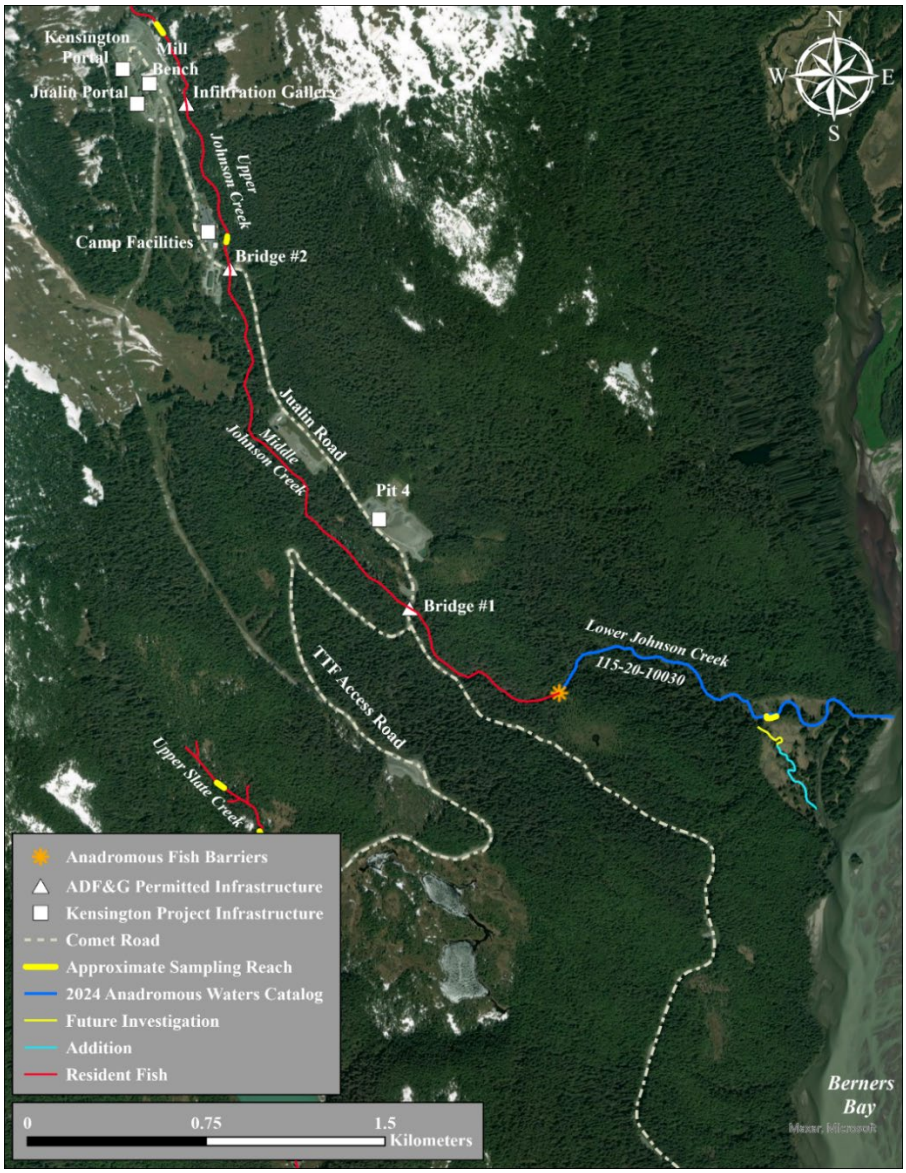

Figure 10.–Johnson Creek area.

[d] ADF&G Stream No. 115-20-10200 provides habitat for Chinook and coho salmon, Dolly Varden and eulachon.

[e] Authorized under Fish Habitat Permit FH11-I-0130.

Lower Johnson Creek

Lower Johnson Creek comprises a 1.5 km reach between the Lace River and a 30 m waterfall precluding upstream fish migration; the reach is a mixture of drainages near mine infrastructure in Middle[f] and Upper Johnson Creeks, and other natural upstream drainages such as Snowslide Creek. Johnson Creek (Stream No. 115-20-10070) provides habitat for chum, coho, and pink salmon (Giefer and Graziano 2024). We also documented Dolly Varden and cutthroat trout in the drainage (Timothy and Kanouse 2012). We sample BMIs and sediment about 600 m upstream from the mouth at about 9 m elevation in a low gradient moderate width floodplain channel type (Figure 11; Paustian 2010) and count adult salmon throughout Lower Johnson Creek.

Figure 11.–Lower Johnson Creek, May 2, 2024.

Upper Johnson Creek

Upper Johnson Creek provides habitat for Dolly Varden (Timothy and Kanouse 2012). In 2024, we sampled a new site: Upper Johnson Creek SP2, to provide reference data representing natural background conditions above mine influence (e.g. the Kensington waste rock stockpile). We sample BMIs and sediment at SP1, about 50 m upstream of the Jualin Road Bridge #2 and about 207 m elevation, and BMIs at Upper Johnson Creek SP2 about 1,050 m upstream of the Jualin Road Bridge #2 and about 256 m elevation, both characterized as a medium width moderate grade mixed control channel type (Paustian 2010) with boulder and cobble substrate dominant (Figures 12, 13).

[f] Mine facilities include the domestic wastewater treatment plant, warehouse, storage of reclamation material and acid-generating rock stockpiles, bridges, and Pit 4; drainages include the domestic wastewater outfall, and storm water discharges. Aquatic studies are not required in Middle Johnson Creek.

Figure 12.–Upper Johnson Creek SP1 during macroinvertebrate sampling, April 30, 2024.

Figure 13.–Upper Johnson Creek SP2 during macroinvertebrate sampling April 30,2024.

Sherman Creek

Sherman Creek drains a 10.84 km^2 watershed to the east shore of Lynn Canal (Coeur 2022; Figure 14). A 15 m waterfall approximately 460 m upstream from the Lower Sherman Creek mouth precludes upstream fish migration. Middle Sherman Creek comprises the 2 km reach between the waterfall and the Comet Beach Road bridge; Upper Sherman Creek comprises the reach upstream of the bridge to the headwaters. Water from the underground workings is collected and treated at the Comet Water Treatment plants, then discharged to Middle Sherman Creek via Outfall 001.

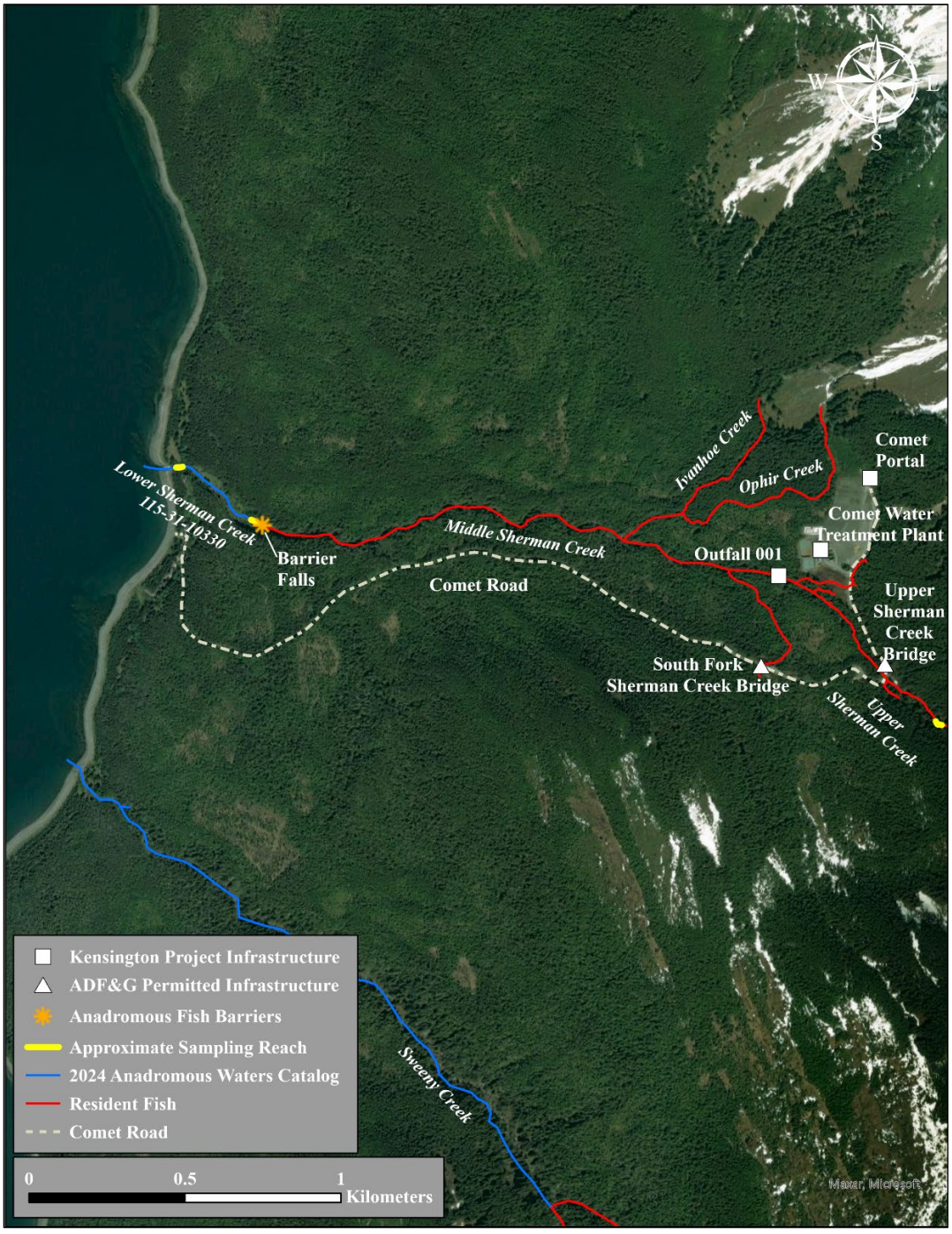

Figure 14.–Sherman Creek area.

Lower Sherman Creek

Lower Sherman Creek is a mixture of drainages near and from mine infrastructure in Middle Sherman Creek and its tributaries.[g] Sherman Creek (Stream No. 115-31-10330) provides habitat for chum and pink salmon (Giefer and Graziano 2024). We also documented Dolly Varden throughout the system (Timothy and Kanouse 2012). We sample periphyton, BMIs, and sediment in a medium width moderate gradient mixed control channel type (Paustian 2010) at Sample Point 1 (SP1; about 12 m elevation; Figure 15), and periphyton and BMIs at Sample Point 2 (SP2; about 26 m elevation; Figure 16), a similar channel type. We count adult salmon throughout Lower Sherman Creek.

Figure 15.–Lower Sherman Creek SP1 during macroinvertebrate sampling, April 30, 2024.

Figure 16.–Lower Sherman Creek SP2 during periphyton sampling, July 22, 2024.

[g] Mine facilities and infrastructure include the Comet water treatment plant, waste rock pile, bridges and culverts and Comet water treatment plan Outfall 001; drainages include Ivanhoe Creek, Ophir Creek, and South Fork Sherman Creek.

Upper Sherman Creek

In 2024, we sampled a new site: Upper Sherman Creek SP2 to provide reference data representing natural background conditions above mine influence (e.g. the Comet waste rock stockpile and Outfall 001). Upper Sherman Creek provides habitat for Dolly Varden. We sample periphyton, BMIs, and sediment at about 258 m upstream of the Upper Sherman Creek bridge at about 250 m elevation in a small width high grade mixed control channel type (Figure 17; Paustian 2010).

Figure 17.–Upper Sherman Creek during macroinvertebrate sampling April 30, 2024.

AQUATIC STUDIES AND LOCATIONS

Between April 30, 2024, and October 16, 2024, we completed the Kensington Mine aquatic studies required in the project Plan of Operations (Coeur 2022) and APDES Permit AK0050571. Sampling locations of the required aquatic studies for each sample site are detailed in Table 1.

Table 1.–Aquatic studies sampling sites and schedule, 2024.

Location	Sample Site	Latitude	Longitude	Date Sampled
Lower Slate Creek	Periphyton	58.7905	-135.0345	7/23
	Benthic macroinvertebrates	58.7905	-135.0345	5/2
	Sediment composition and element concentrations	58.7905	-135.0345	7/23
	Adult pink, chum, and coho salmon surveys	58.7880	-135.0315	8/9-10/16
		58.7964	-135.0389	
West Fork Slate Creek	Periphyton	58.7993	-135.0457	7/23
	Benthic macroinvertebrates	58.7993	-135.0457	5/2
	Sediment composition and element concentrations	58.7993	-135.0457	7/23
East Fork Slate Creek	Periphyton	58.8045	-135.0381	7/22
	Benthic macroinvertebrates	58.8045	-135.0381	4/30
	Sediment composition and element concentrations	58.8053	-135.0383	7/22
Upper Slate Creek SP1	Periphyton	58.8189	-135.0415	7/23
	Benthic macroinvertebrates	58.8189	-135.0415	5/2
	Sediment composition and element concentrations	58.8189	-135.0416	7/23
Upper Slate Creek SP2	Periphyton	58.8206	-135.0445	7/23
	Benthic macroinvertebrates	58.8206	-135.0445	5/2
	Sediment composition and element concentrations	58.8206	-135.0445	7/23
Lower Johnson Creek	Sediment composition and element concentrations	58.8235	-135.0042	7/22
	Benthic macroinvertebrates	58.8235	-135.0042	4/30
	Adult pink, chum, and coho salmon surveys	58.8241	-134.9999	8/9-10/16
		58.8243	-135.0201	
Upper Johnson Creek SP1	Benthic macroinvertebrates	58.8407	-135.0450	7/22
	Sediment composition and element concentrations	58.8407	-135.0450	4/30
Upper Johnson Creek SP2	Benthic macroinvertebrates	58.849	-135.0502	4/30
Lower Sherman Creek SP1	Periphyton	58.8687	-135.1415	7/22
	Benthic macroinvertebrates	58.8687	-135.1415	4/30
	Sediment composition and element concentrations	58.8687	-135.1415	7/22
	Adult pink and chum salmon surveys	58.8689	-135.1422	8/9-8/22
		58.8671	-135.1367	
Lower Sherman Creek SP2	Periphyton	58.8674	-135.1381	7/22
	Benthic macroinvertebrates	58.8674	-135.1381	4/30
Upper Sherman Creek	Periphyton	58.8619	-135.0983	7/22
	Benthic macroinvertebrates	58.8619	-135.0983	4/30
	Sediment composition and element concentrations	58.8619	-135.0983	7/22

Note: WGS84 datum.

Periphyton Chlorophyll Density and Composition Monitoring

The APDES permit (Section 1.6.5.3) requires annual monitoring of periphyton chlorophyll density and composition within mining influence at Lower Slate, East Fork Slate, and Lower Sherman Creeks and at reference reaches above mine influence at West Fork Slate and Upper Slate, and

Upper Sherman Creeks to detect changes in baseline primary productivity compared to natural variation due to factors such as mineral seeps, climate, stream migration and stream flow. Annual periphyton sampling occurs between late-June and early-August and not within three weeks following peak snowmelt discharge to detect changes over time.

Periphyton is composed of primary producing organisms such as algae, cyanobacteria, heterotrophic microbes, and detritus attached to the submerged surfaces of aquatic ecosystems. Algal density and community structure are influenced by water and sediment quality through physical, chemical, and biological factors that change throughout the year (Barbour et al. 1999).

The concentration of chlorophyll a (Chl-a) pigment in periphyton samples provides an estimate of active algal biomass (density), while concentrations of chlorophyll b (Chl-b) and chlorophyll c (Chl-c) pigments estimate the composition of algal organisms present, such as green algae that produce Chl-b, and diatoms and brown algae that produce Chl-c. The chlorophyll data are used to document primary productivity (e.g., live algal biomass).

Benthic Macroinvertebrate Density and Community Composition Monitoring

The APDES permit (Section 1.6.5.2) requires annual monitoring of BMI density and community composition within mining influence at Lower Slate, East Fork Slate, Upper Johnson, and Lower Sherman Creeks and at reference reaches above mine influence at West Fork Slate and Upper Slate, Upper Johnson, and Upper Sherman Creeks to detect changes in baseline secondary productivity compared to natural variation due to factors such as mineral seeps, climate, stream migration and stream flow. Annual BMI sampling occurs between late-April and May after spring breakup and before peak snowmelt to detect changes over time. Sampling targets riffle habitats which support greater densities of EPT taxa than other stream habitat types (Barbour et al. 1999) and generally are sensitive to environmental changes and have short life cycles. The BMI data are used to document secondary productivity (e.g. macroinvertebrate density and diversity).

BMI classified in the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies), collectively known as EPT taxa, include genera sensitive to changes in water and sediment quality (Barbour et al. 1999). These organisms are secondary producers, and feed upon periphyton and other macroinvertebrates, and are a food source for fish.

Adult Salmon Count Monitoring

The Plan of Operations (Coeur 2022, USDA 2022) requires annual counts of adult chum, coho, and pink salmon in Lower Slate, Lower Johnson, and Lower Sherman Creeks throughout the peak run period for each species.[h] Annual peak run sampling occurs between August and November depending on natural variation of adult salmon spawning. The data are used to document adult salmon presence.

Sediment Composition and Element Concentrations Monitoring

The APDES permit (Section 1.6.4) requires annual analysis of three[i] fine sediment samples within mining influence at Lower Slate, East Fork Slate, Lower Johnson, and Lower Sherman Creeks and

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[h] Per the USFS (2022) Record of Decision. During the years 2011–2021, we counted fish throughout the entire spawning seasons.

[i] In 2020, Coeur voluntarily agreed and we collected and annually reported results of three samples at each site, to document element concentration variability; after reviewing the data, collecting three sediment samples per site

at reference reaches above mine influence at Upper Slate and Upper Sherman Creeks to detect changes in sediment element concentrations over time. Annual sediment sampling occurs in July and samples are analyzed for particle size, total solids, total volatile solids, total sulfide, total organic carbon, and total concentrations of silver (Ag), aluminum (Al), arsenic (As) cadmium (Cd), chromium (Cr), copper (Cu), mercury (Hg), nickel (Ni), lead (Pb), selenium (Se), and zinc (Zn).

Sediment element concentrations are influenced by a variety of factors, such as geochemical composition and weathering within the watershed, sediment grain size, organic content, and development/disturbance (Tchounwou et al. 2012). Subsequently, sediment element concentrations influence benthic aquatic productivity, and heavy metals in sediments can decrease BMI taxa richness and alter the composition of BMI communities (Qu et al. 2010).

was incorporated in the 2024 APDES permit renewal. Prior to 2020, we collected one sediment sample per site as required per the APDES permit.

METHODS

We review data sets annually to ensure accuracy and consistency with modifications to the methods; corrections and updates are reported in the document and appendices. The most recent technical report presents the current data sets and should be used to analyze data from previous years.

PERIPHYTON: CHLOROPHYLL DENSITY AND COMPOSITION

Sample Collection and Analysis

Sampling methods are adapted from Barbour et al. (1999). Ten smooth, flat, undisturbed, and perennially wetted rocks were collected from submerged cobble in riffle habitats in less than 0.45 m water depth at each sample site and submerged in the creek in the same orientation they were collected. To collect a sample from each rock, a 5 × 5 cm square of high-density foam was held on the sample area; the area around the foam was scrubbed with a toothbrush to remove algae and other organisms outside the sample area. The rock was rinsed by submerging it in the stream while holding the foam in place; the toothbrush also was rinsed and scrubbed in the stream to remove remnant periphyton.

A 47 mm diameter Type A/E 1 µm glass fiber filter was placed into a Nalgene® filter receptacle attached to a vacuum pump with a gauge. The foam square was removed and the underside of the foam and the sample area were gently scrubbed in a circular pattern with the toothbrush into the filter receptacle. Stream water in a wash bottle was used to rinse loosened periphyton from the foam, sample area of the rock, toothbrush, and the inside of the filter receptacle onto the filter. The toothbrush was rinsed inside the receptacle, and the sample area was scrubbed a second time and the rinse cycle repeated. With most of the water pumped through the filter, maintaining pressure less than 34 kPa, a few drops[j] of saturated magnesium carbonate solution were added to the filter[k]. After all the water was pumped through the glass fiber filter, it was removed from the receptacle, folded in half with the sample inside, and wrapped in a white coffee filter for additional moisture absorption. The samples were placed in a sealed, labeled plastic bag with desiccant and stored in a light-proof cooler containing frozen icepacks during transportation; the samples were stored in a -20°C freezer in the ADF&G Douglas laboratory until processing.

USEPA (1997) protocol was followed for chlorophyll extraction and measurement, determining instrument and estimated detection limits, and data analysis.[l] Samples were removed from the freezer, cut into small pieces, and placed into individual 15 mL screw cap centrifuge tubes containing 10 mL of 90% buffered acetone. The centrifuge tubes were capped and shaken to ensure complete submersion of the sample. Secured in a vial rack covered with aluminum foil, to reduce the potential for light exposure, the samples were stored in a refrigerator for 12–24 hours to allow for saturation and chlorophyll extraction.

In a dimly-lit laboratory, the samples were removed from the refrigerator and centrifuged for 20 min at 500 relative centrifugal force, using a properly balanced centrifuge. Prior to sample

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[j] This measurement is not exact as the amount of water and magnesium carbonate used to create a saturated solution varies and does not affect sample integrity; supernatant solution was used to avoid solids.

[k] To prevent acidification and conversion of chlorophyll to phaeophytin.

[l] Deviations from USEPA (1997) include samples storage longer than 3.5 weeks and cutting sample filters to reduce acetone exposure for laboratory staff (as opposed to homogenization, an unnecessary risk to employee health).

measurement, two cuvettes containing 90% buffered acetone were placed into a Shimadzu UV-1800 spectrophotometer to calibrate absorbance of the solvent at wavelengths 664 nm, 647 nm, 630 nm, and 750 nm. Supernatant from each sample was decanted into an individual cuvette and absorbance was measured at each wavelength. Each sample was treated with 80 µL of 0.1 N hydrochloric acid for 90 seconds to convert the chlorophyll to phaeophytin, and absorbance was measured at wavelengths 665 nm and 750 nm. To minimize stray light and improve resolution, sample cuvettes were cleaned with a nonabrasive wipe prior to placement in the spectrophotometer.

Trichromatic equations were used to estimate Chl-a, Chl-b, and Chl-c concentrations, correcting for turbidity using the 750 nm absorbance value (APHA 2012, USEPA 1997). Chl-a concentrations were corrected when phaeophytin was detected. When Chl-a was not detected in a sample, the concentration is reported as the spectrophotometer estimated detection limit and the values for Chl-b or Chl-c were excluded. The 2024 estimated detection limit for Chl-a concentration was 0.22 mg/m^2.

Data Presentation

For each site and by year, mean densities of Chl-a, Chl-b, and Chl-c are presented in a table, Chl-a densities in a figure, and mean proportions of Chl-a, Chl-b, and Chl-c in a figure. Annual data from 2011 through 2024 are provided in Appendix A.

BENTHIC MACROINVERTEBRATE DENSITY AND COMMUNITY COMPOSITION

Sample Collection and Analysis

Six BMI samples were collected from each site using a Surber stream bottom sampler in riffles and runs with gravel and cobble substrate and varying flow velocities—habitats that support greater BMI densities and taxonomic richness (Barbour et al. 1999). Other habitat types (e.g., pools) were excluded to reduce variability.

The Surber stream bottom sampler has a 0.093 m^2 sample area and material is captured in a 200 mL cod end and constructed with 300 µm mesh net. After securing the frame on the streambed with the opening facing upstream, rocks within the sample area were scrubbed with a bristle brush; gravel, sand, and silt were disturbed to about 10 cm depth to dislodge macroinvertebrates into the net. The net was rinsed in the stream to ensure all organisms drifted into the cod end, and each sample was transferred from the cod end to a labeled 500 mL plastic bottle. Samples were preserved in 95% ethanol at a ratio of three parts ethanol to one part sample. Samples exceeding the capacity of the cod end were discarded in the field to minimize detritus and substrate in samples and ensure proper sample preservation.

Habitat Biologists used an elutriator system and 500 µm and 300 µm sieves to sort macroinvertebrates from debris,[m] and identified organisms to the lowest practical taxonomic level[n] using Merritt and Cummins (1996) and Stewart and Oswood (2006). Habitat biologists provided quality control by verifying macroinvertebrate identification of eight samples (more than 10% of

[m] Gordon Willson-Naranjo and Greg Albrecht, Habitat Biologists, to Jackie Timothy, Southeast Regional Supervisor, ADF&G Division of Habitat. Memorandum: Benthic macroinvertebrate elutriation trials amendment; dated 12/17/2013. Unpublished document can be obtained from the Southeast Regional Supervisor, ADF&G Division of Habitat, 802 3rd Street, Douglas, AK.

[n] Insects of the orders Ephemeroptera, Plecoptera, Trichoptera, and Diptera to genus, except nonbiting midges to family Chironomidae, and all others to class or order.

samples).

BMI density (per m^2) for each sample was calculated by dividing the number of macroinvertebrates by 0.093 m^2—the Surber sampling area. Mean density was estimated for each site by calculating the mean density among the six samples. Taxa richness is reported as the number of taxonomic groups identified to the lowest practical level; terrestrial[o] organisms were excluded from all calculations.

Data Presentation

For each site and by year, a table is presented summarizing mean BMI and EPT density, total taxa, total EPT taxa, and percent EPT. Mean densities and community composition are presented in a figure. Annual data from 2011 through 2024 are provided in Appendix B.

ADULT SALMON COUNTS

Sample Collection

We counted adult salmon downstream of fish migration barriers once per week during peak runs, August through early September for pink and chum salmon and late September through mid-October for coho salmon. Stream surveys for pink and chum salmon and carcasses were conducted by foot on Slate and Sherman Creeks and on Johnson Creek by aerial count via helicopter[p]. Foot surveys for coho salmon and carcasses were conducted on Slate and Johnson Creeks. To improve coho salmon observations, biologists conducted snorkel surveys and recorded underwater videos with a GoPro in large pools and around large woody debris—habitats where adult coho salmon tend to concentrate.

Each survey began at the stream mouth, proceeded upstream by established reach identifiers and concluded at the fish migration barrier. One biologist enumerated and recorded while the other biologist verified counts and provided bear protection. Approximate weather and streamflow conditions were recorded for each survey.

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[o] Including adult terrestrial insects of the orders Ephemeroptera, Plecoptera, Trichoptera, and Diptera.

[p] Aerial surveys are conducted on Lower Johnson Creek throughout the pink and chum salmon run due to brown bear density in the area and per Coeur (2022).

Data Presentation

For each site, figures are presented of the peak weekly adult pink salmon count; the 2011–2024 peak counts by species are presented in a table. Compiled 2011–2024 pink salmon counts by statistical week are provided in Appendix C.

SEDIMENT COMPOSITION AND ELEMENT CONCENTRATIONS

Sample Collection and Analysis

Wearing latex gloves, three samples of submerged sand and silt were collected at each site within actively flowing channels. For each sample, the top 4 cm of sediment was retained in three glass jars provided by the laboratory[q]. To preserve sulfide in the sample jar designated for sulfide analyses, 5–10 mL of zinc acetate was added immediately after sample collection to fill the sample jars; all other samples were filled to the top with stream water to minimize air space.[r] Samples were stored in a cooler with frozen icepacks during transport and in an ADF&G Douglas laboratory fridge until shipment to the ALS Environmental laboratory in Kelso, WA for analyses.

The samples were shipped in a cooler with frozen icepacks via overnight air freight, maintaining written chain of custody documentation. ALS Environmental measured particle size, total solids, total volatile solids, total sulfide, total organic carbon, and total concentrations of Ag, Al, As, Cd, Cr, Cu, Hg, Ni, Pb, Se, and Zn on a dry-weight basis (Table 2).[s] The laboratory provided Tier IV quality assurance and quality control information, including results for matrix spikes, sample blanks, and sample duplicates.

Table 2.–Sediment tests, analytes, and methods used in 2024.

Test Description	Analyte	Method
Standard test method for particle-size analysis of soils	Particle size determination	ASTM D422M
Puget Sound Estuary Program sediment total organic carbon	Total organic carbon	PSEP TOC
Total solids on liquids, modified for solids	Total solids	EPA 160.3 Modified
Puget Sound Estuary Program sediment sulfide	Total sulfide	PSEP Sulfide
Total volatile solids, modified for solids	Total volatile solids	EPA 160.4 Modified
Mercury in solid or semisolid waste	Hg	EPA 7471B
Determination of trace elements in waters and wastes by ICP/MS	Ag, Al, As, Cd, Cr, Cu, Ni, Pb, Se, Zn	EPA 200.8

Data Presentation

For each site and by year, all sediment element concentration data are presented in a figure, including the mean values; for new sites established in 2024 mean element concentrations are presented in a table. When duplicate data are provided by the lab, we report the mean values.

[q] In 2015, sieving sediments during collection was discontinued to avoid sample bias per ALS Environmental staff recommendation.

[r] Per laboratory staff instruction (S. Samy, Kelso Laboratory Senior Project Manager, ALS Environmental, Kelso, WA, personal communication).

[s] The AECOM Environmental Toxicology lab in Fort Collins, CO completed the 2011–2013 sediment sample analyses; since 2014, the ALS Environmental lab in Kelso, WA has completed the sediment sample analyses.

Sediment element concentrations undetected at the method reporting limit are illustrated as an empty circle (◦) and as a solid circle (•) for measured element concentrations.

The data are compared with the threshold effects concentrations (TEC) and the probable effects concentrations (PEC) for inorganics in freshwater sediment guidelines developed by the National Oceanic and Atmospheric Administration (Buchman 2008). The guidelines are based on results of controlled laboratory bioassays, where element concentrations below the TECs rarely affect aquatic life survival and growth, and element concentrations above the PECs can affect aquatic life survival and growth.

Annual data from 2011–2024 and the 2024 laboratory report are provided in Appendix E.

RESULTS

WEATHER AND STREAMFLOW DATA

The National Weather Service (2025) reports that during 2024, the Juneau area received precipitation (197 cm) about 16% above normal and snowfall (219 cm) about 2% below normal, compared to the mean values reported 1991–2020. Prior to spring macroinvertebrate sampling, the Juneau area received near normal precipitation (0.8 cm below) and the air temperature was 1.2 °F above normal. Prior to summer periphyton sampling, the Juneau area received near normal precipitation (6.8 cm above) and the air temperature was 0.7°F above normal.

Coeur Environmental staff operate streamflow transducers in Sherman, Slate, and Johnson Creeks providing pressure data that can be related to water depth; the transducers malfunctioned in 2024 resulting in data gaps and unreliable data for publication. Coeur is working to resolve the streamflow transducer issues.

Inferring from local stream gauges and regional precipitation data for 2024, streamflow in spring was likely normal prior to macroinvertebrate sampling, and streamflow during summer was likely higher with streams having peak streamflow events in July prior to periphyton sampling (USGS 2025). Precipitation in July was 2.5 times the normal amount for the Juneau area; peak events generally are defined as streamflow at or near bankfull (NWS 2025).

SLATE CREEK

Lower Slate Creek

Periphyton: Chlorophyll Density and Composition

The 2024 Lower Slate Creek estimate mean Chl-a density was 1.08 mg/m^2, the lowest observed density since sampling began in 2011 (Table 3; Figure 18). The samples contained about 89% Chl-a, 10% Chl-c, and 1% Chl-b, consistent with composition observed in previous years (Figure 19).

Table 3.–Lower Slate Creek mean chlorophylls a, b, and c densities, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chl-a (mg/m^2)	5.15	2.31	12.59	3.97	2.16	5.26	2.30	4.20	33.71	1.22	2.00	4.87	4.81	1.08
Chl-b (mg/m^2)	0.43	0.05	0.00	0.85	0.10	0.21	0.23	0.04	0.00	0.11	0.04	0.09	0.06	0.01
Chl-c (mg/m^2)	0.26	0.18	1.64	0.30	0.21	0.62	0.23	0.63	6.49	0.06	0.32	0.62	0.64	0.16

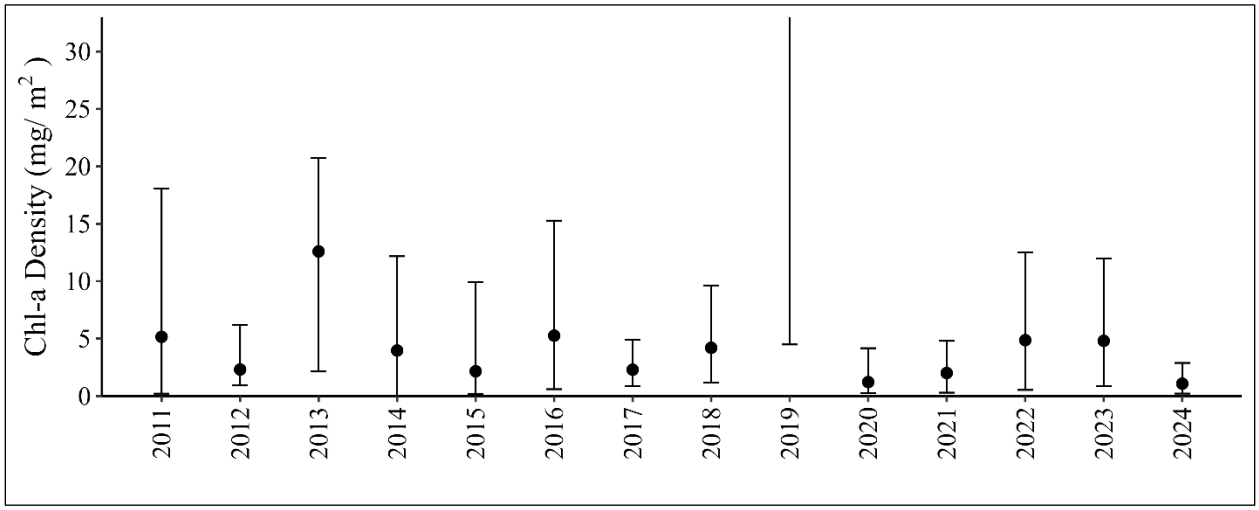

Figure 18.–Lower Slate Creek mean chlorophyll a densities, 2011–2024.

Note: Minimum, mean, and maximum values shown.

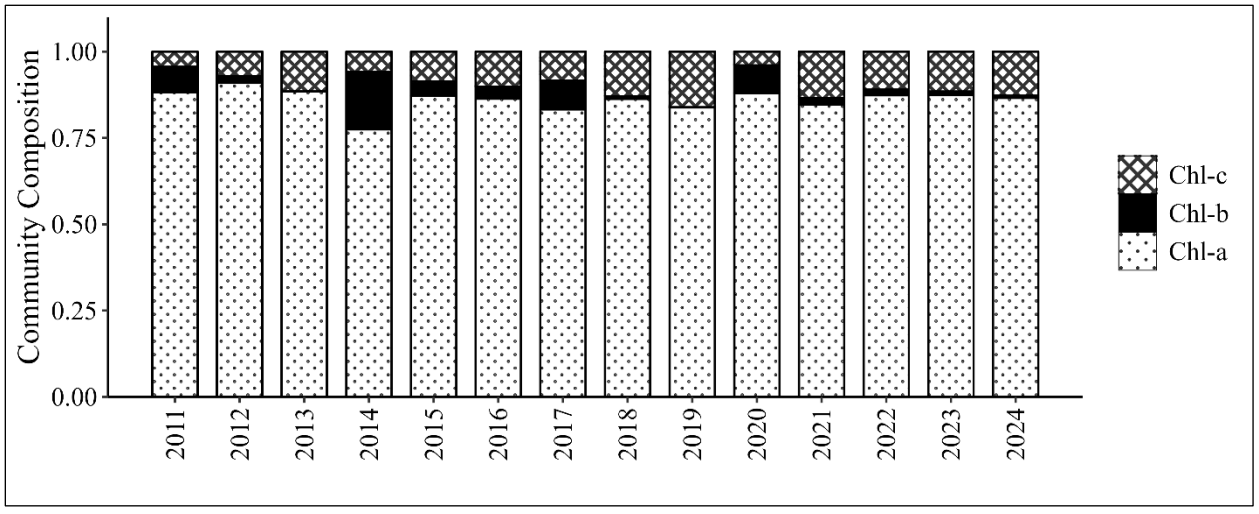

Figure 19.–Lower Slate Creek mean proportions of chlorophylls a, b, and c, 2011–2024.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Lower Slate Creek BMI estimate mean density is 1,434 BMI/m^2 and we identified 26 taxa, within the middle range of BMI densities and taxa observed 2011–2023 (Table 4; Figures 20, 21). We estimate mean EPT density at 636 EPT/m^2, within the middle range observed, accounting for 44% of the samples. Dominant taxa were Clitellata (worms) of the genus *Oligochaeta* (28%) and Diptera of the family Chironomidae (23%).

Table 4.–Lower Slate Creek BMI data summaries, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	288	1,199	1,316	786	818	509	654	217	532	229	208	312	744	636
Mean BMI density (per m^2)	2,057	3,154	2,581	4,136	3,407	3,394	1,308	482	934	1,208	425	810	955	1,434
Number of EPT Taxa	13	17	16	17	13	11	13	9	9	11	8	10	13	15
Number of BMI Taxa	29	32	27	32	26	24	27	17	18	24	17	15	20	26
% EPT	14	38	51	19	24	15	50	45	57	19	49	38	78	44

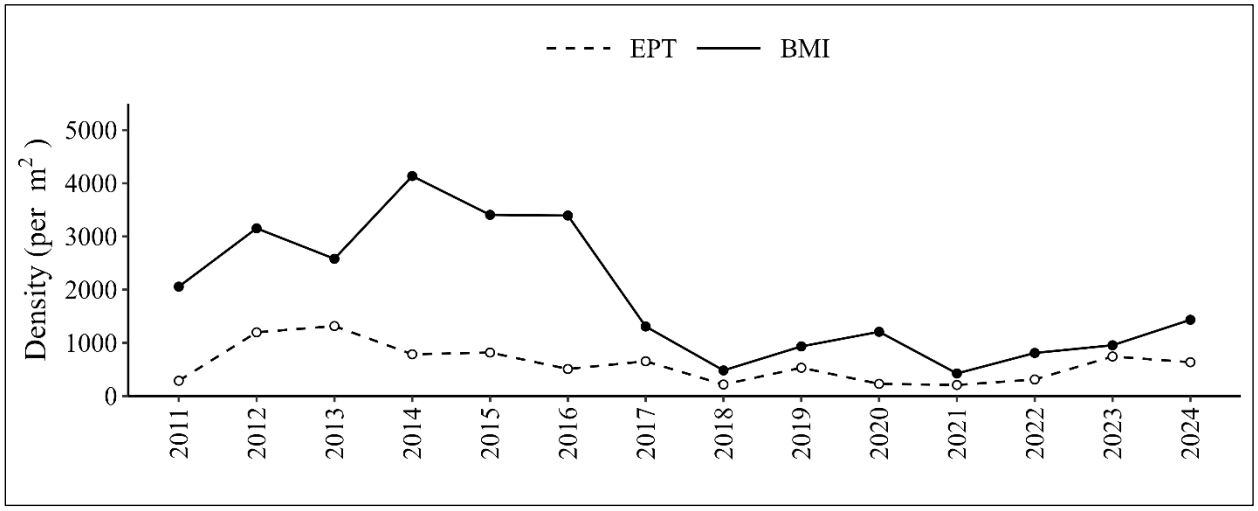

Figure 20.–Lower Slate Creek mean BMI and EPT densities, 2011–2024.

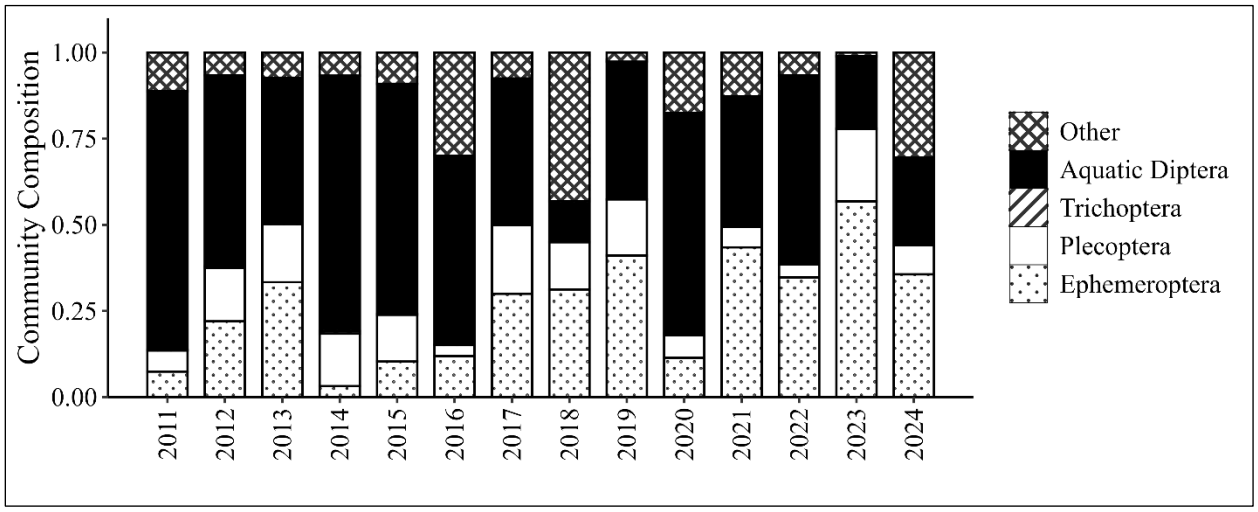

Figure 21.–Lower Slate Creek BMI composition, 2011–2024.

Adult Salmon Counts

In 2024, during six peak count surveys in Lower Slate Creek, we counted six pink salmon and zero chum and coho salmon (Table 5).

Table 5.–Lower Slate Creek adult salmon counts, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Pink salmon	6,254	7,272	3,337	41	7,580	79	7,416	4	837	15	3,661	23	4,271	6
Chum salmon	59	1	1	0	13	45	1	0	0	0	0	0	0	0
Coho salmon	0	0	26	5	0	2	5	1	1	4	0	0	0	0

Note: The 2022–2024 data presented are from peak counts during the spawning seasons; all other years include complete spawning season counts.

Sediment Element Concentrations

The 2024 Lower Slate Creek sediment samples contained As, Cd, Cu, Ni, and Zn element concentrations near or above the TEC freshwater sediment toxicity guidelines, as in most previous years (Figure 22). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines, and within ranges previously observed 2011–2023.

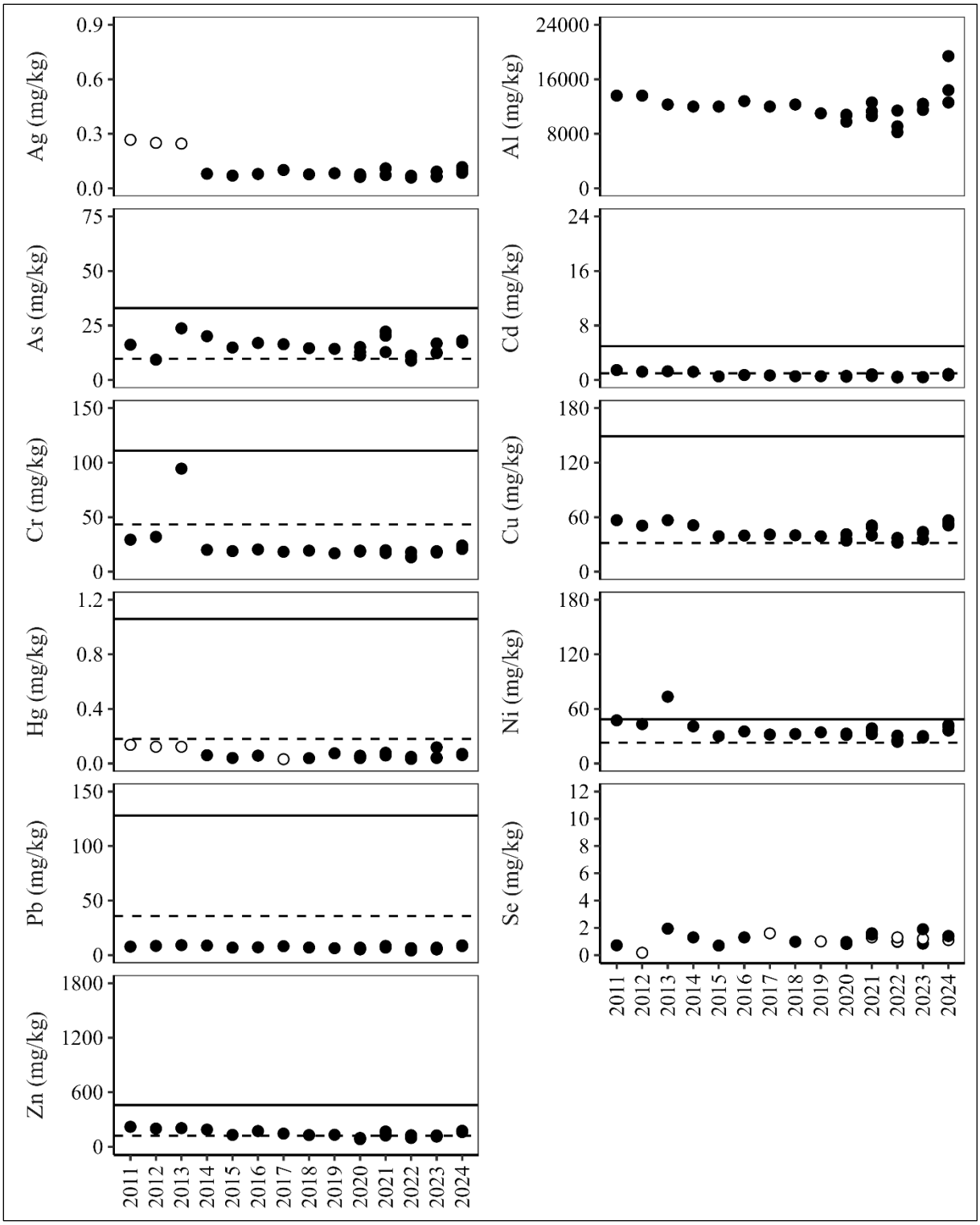

Figure 22.–Lower Slate Creek sediment element concentrations, 2011–2024.

Note: Elements undetected (o) are presented at the method reporting limit. The dashed line represents TEC and solid line represents the PEC; guidelines are not published for Ag, Al, or Se (Buchman 2008).

West Fork Slate Creek

Periphyton: Chlorophyll Density and Composition

The 2024 West Fork Slate Creek estimate mean Chl-a density was 0.42 mg/m^2, the lowest observed mean density 2011–2023 (Table 6; Figure 23). The samples contained about 89% Chl-a, 9% Chl-b, and 2% Chl-c, the highest percentage of Chl-b observed (Figure 24).

Table 6.–West Fork Slate Creek mean chlorophylls a, b, and c densities, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chl-a (mg/m^2)	3.92	1.01	4.22	0.77	0.92	4.93	4.96	3.84	2.95	1.08	15.66	3.58	16.08	0.42
Chl-b (mg/m^2)	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
Chl-c (mg/m^2)	0.27	0.10	0.61	0.06	0.06	0.66	0.85	0.74	0.46	0.15	2.76	0.42	2.25	0.03

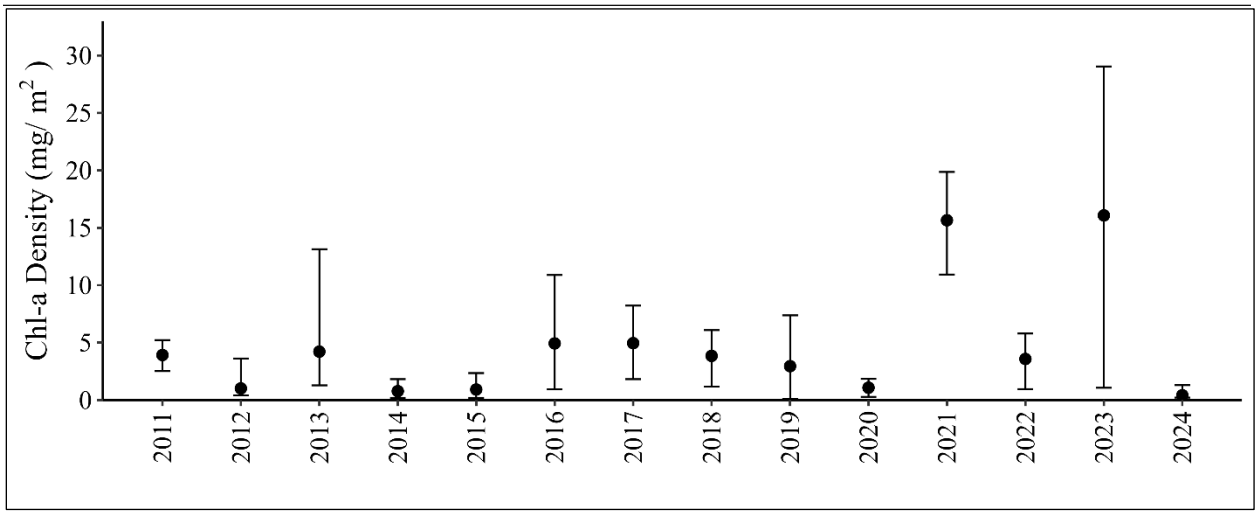

Figure 23.–West Fork Slate Creek mean chlorophyll a densities, 2011–2024.
Note: Minimum, mean, and maximum values.

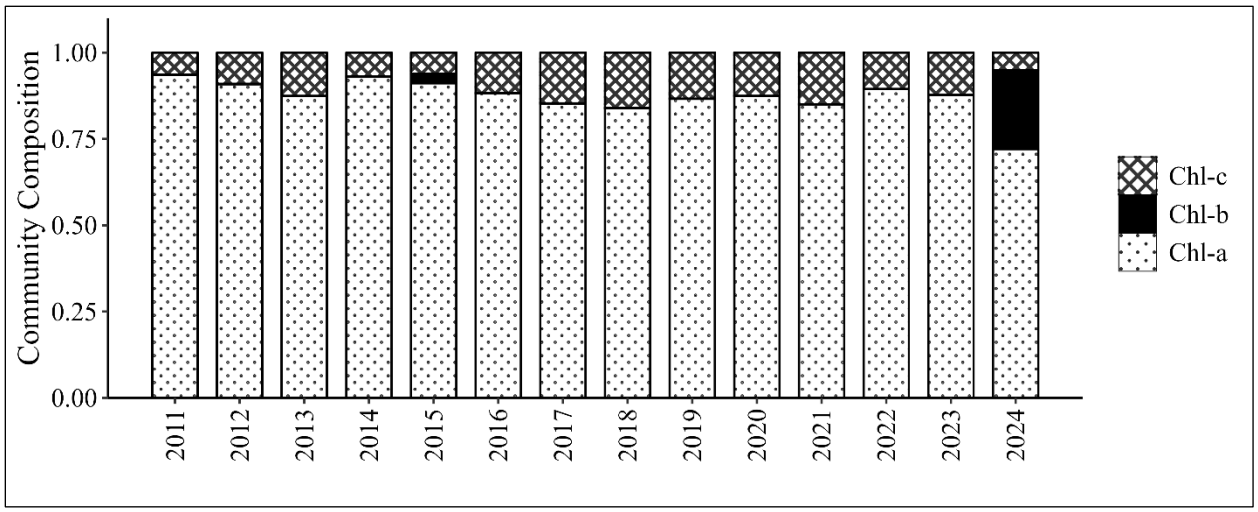

Figure 24.–West Fork Slate Creek mean proportions of chlorophylls a, b, and c, 2011–2024.

Benthic Macroinvertebrate Density and Community Composition

The 2024 West Fork Slate Creek BMI estimate mean density is 1,814 BMI/m^2 and we identified 22 taxa, within the middle range of BMI densities and taxa observed 2011–2023 (Table 7; Figure 25, 26). We estimate mean EPT density at 1,392 EPT/m^2, also within the middle range observed and accounting for 77% of the samples. Dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (38%) and Diptera of the family Chironomidae (20%).

Table 7.–West Fork Slate Creek BMI data summaries, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	402	1,455	2,202	691	2,160	1,132	726	275	1,182	1,060	668	1,233	1,833	1,392
Mean BMI density (per m^2)	502	1,819	2,446	973	2,634	1,470	885	328	1,299	1,358	719	1,437	1,984	1,814
Number of EPT Taxa	11	21	18	17	16	15	13	12	11	12	14	15	16	14
Number of BMI Taxa	21	31	28	29	28	25	21	18	16	18	17	22	21	22
% EPT	80	80	90	71	82	77	82	84	91	78	93	86	92	77

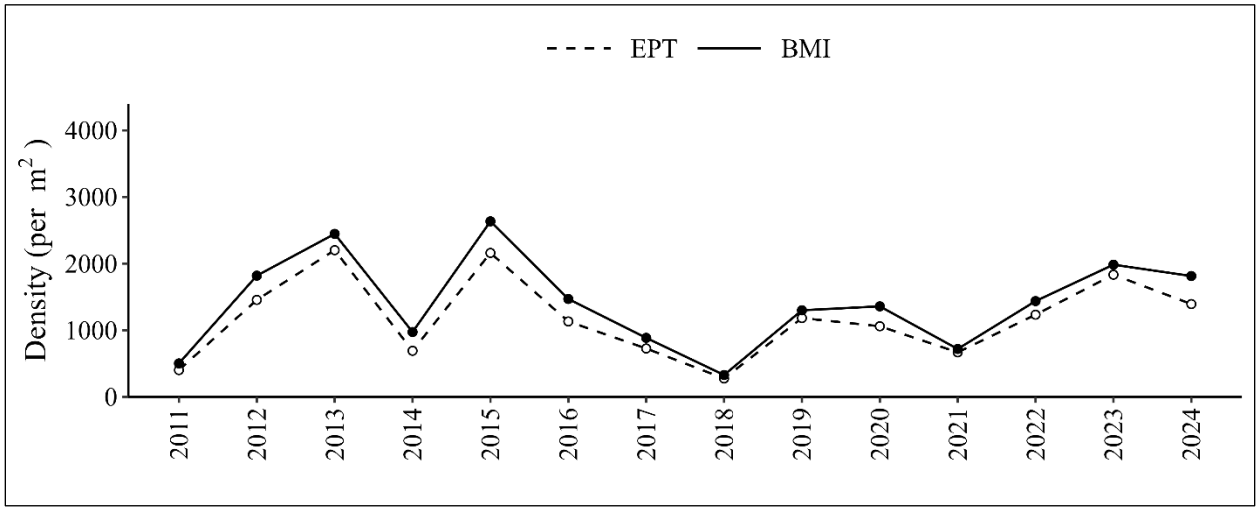

Figure 25.–West Fork Slate Creek mean BMI and EPT densities, 2011–2024.

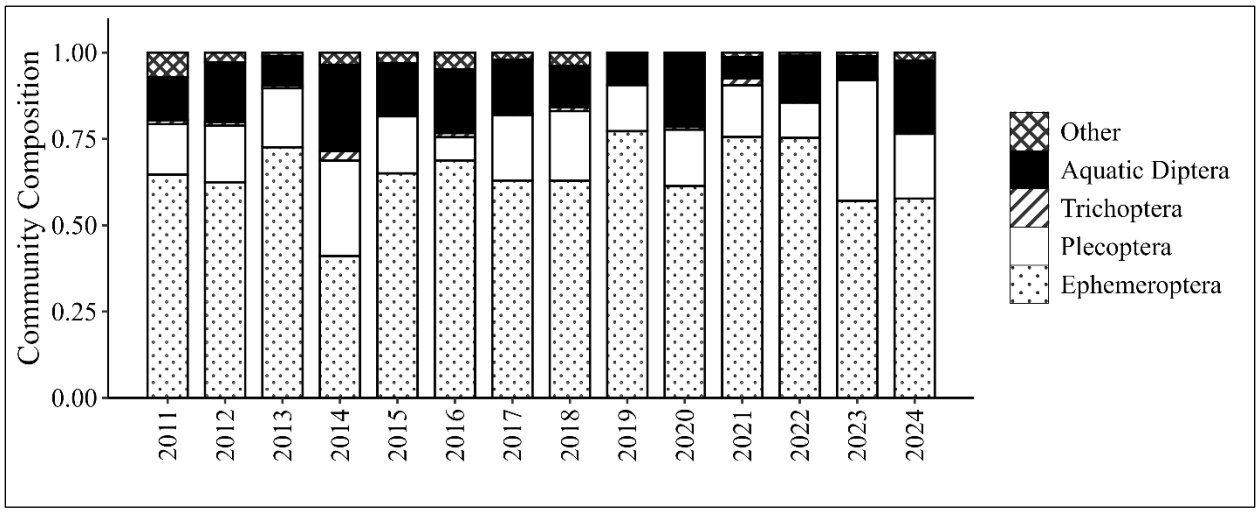

Figure 26.–West Fork Slate Creek BMI composition, 2011–2024.

Sediment Element Concentrations

We initiated sediment collection in 2024 at West Fork Slate Creek and found the samples contained Ni concentrations above the PEC freshwater sediment toxicity guideline (Table 8); As, Cd, Cu, and Zn concentrations were near or above the TEC (Table 8). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 8.–West Fork Slate Creek mean sediment element concentrations, 2024.

Year	Al (mg/kg)	As (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Pb (mg/kg)	Hg (mg/kg)	Ni (mg/kg)	Se (mg/kg)	Ag (mg/kg)	Zn (mg/kg)
2024	13767	31.5	1.82	22.0	73.3	11.5	0.115	53.1	3.53	0.218	265

East Fork Slate Creek

Periphyton: Chlorophyll Density and Composition

The 2024 East Fork Slate Creek estimate mean Chl-a density was 2.15 mg/m^2, within the middle range of mean densities 2011–2023 (Table 9; Figure 27). The samples contained about 90% Chl-a, 9% Chl-c, and 1% Chl-b, consistent with composition observed in previous years (Figure 28).

Table 9.–East Fork Slate Creek mean chlorophylls a, b, and c densities, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chl-a (mg/m^2)	8.84	5.08	2.28	0.27	1.56	1.21	0.64	1.67	3.51	1.39	0.80	1.46	2.47	2.15
Chl-b (mg/m^2)	1.56	0.57	0.06	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.06	0.08	0.00
Chl-c (mg/m^2)	0.24	0.18	0.20	0.03	0.15	0.15	0.06	0.16	0.34	0.13	0.13	0.11	0.25	0.21

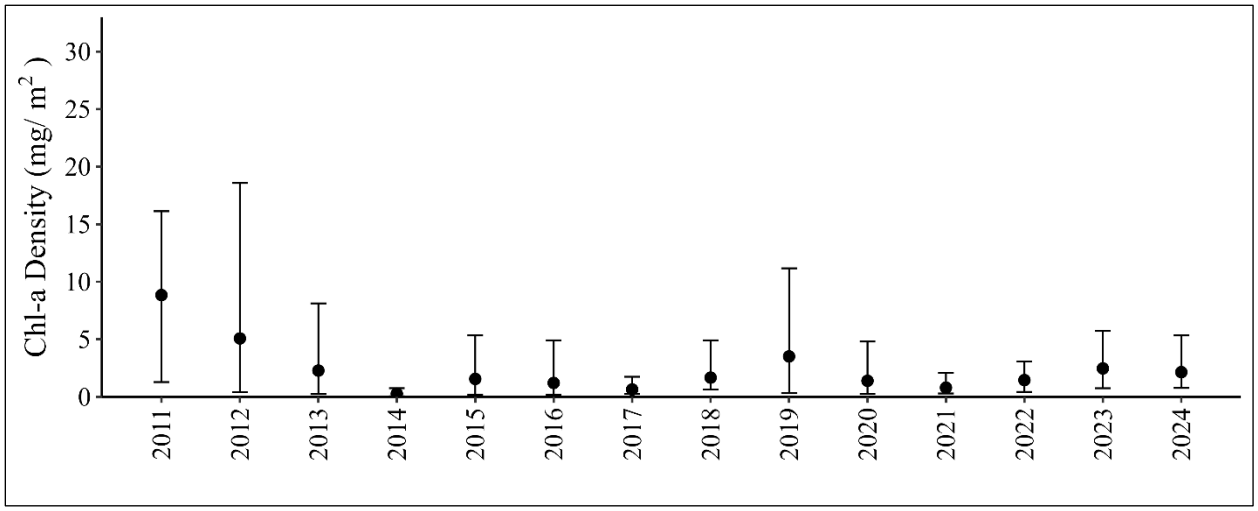

Figure 27.–East Fork Slate Creek mean chlorophyll a densities, 2011–2024.
Note: Minimum, mean, and maximum values shown.

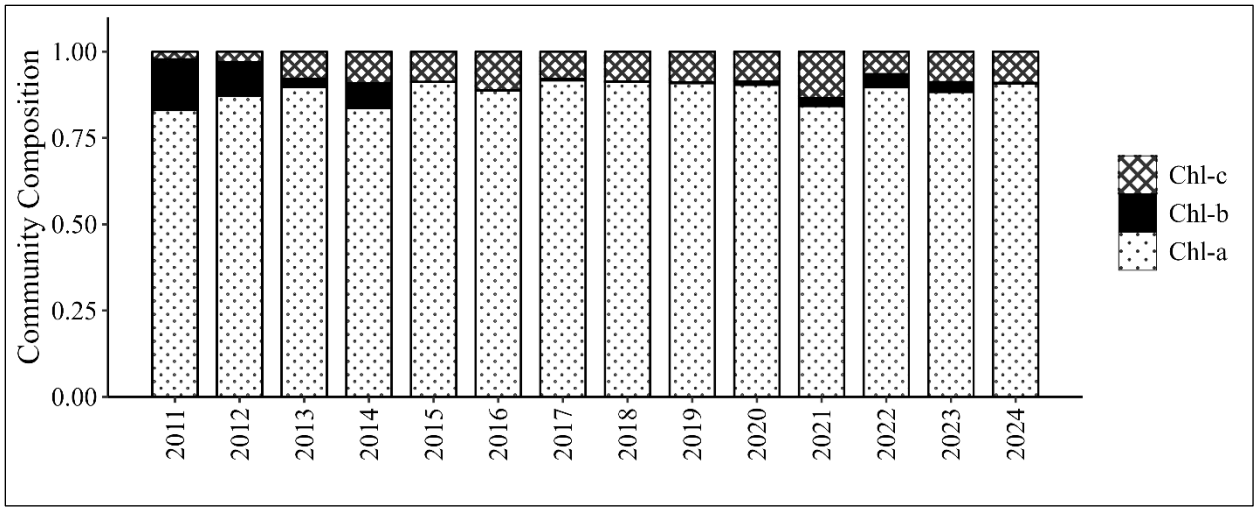

Figure 28.–East Fork Slate Creek mean proportions of chlorophylls a, b, and c, 2011–2024.

Benthic Macroinvertebrate Density and Community Composition

The 2024 East Fork Slate Creek BMI estimate mean density is 8,659 BMI/m^2 and we identified 34 taxa, the second highest BMI density and the highest number of taxa observed 2011–2023 (Table 10; Figure 29, 30). We estimate mean EPT density at 1,849 EPT/m^2, the highest observed, accounting for 21% of the samples. Dominant taxa were bivalves of the genus *Pisidium* (37%) and Diptera of the family Chironomidae (24%), as in previous years we continue to observe a high density of pea clams (*Pisidium*).

Table 10.–East Fork Slate Creek BMI data summaries, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	891	1,066	188	41	694	561	746	287	696	715	344	400	828	1,849
Mean BMI density (per m^2)	4,688	4,633	9,407	2,048	3,854	2,002	6,783	3,588	3,866	5,496	3,437	3,093	6,654	8,659
Number of EPT Taxa	15	17	17	9	16	11	13	15	15	14	14	13	15	17
Number of BMI Taxa	27	33	33	24	28	21	27	26	25	26	23	25	29	34
% EPT	19	23	2	2	18	28	11	8	18	13	10	13	12	21

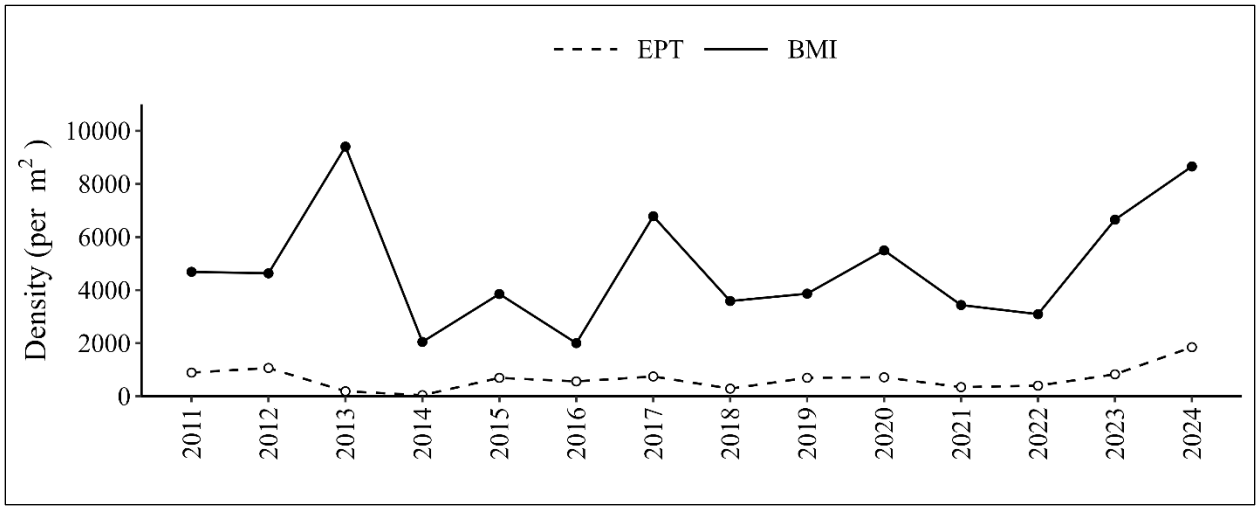

Figure 29.–East Fork Slate Creek mean BMI and EPT densities, 2011–2024.

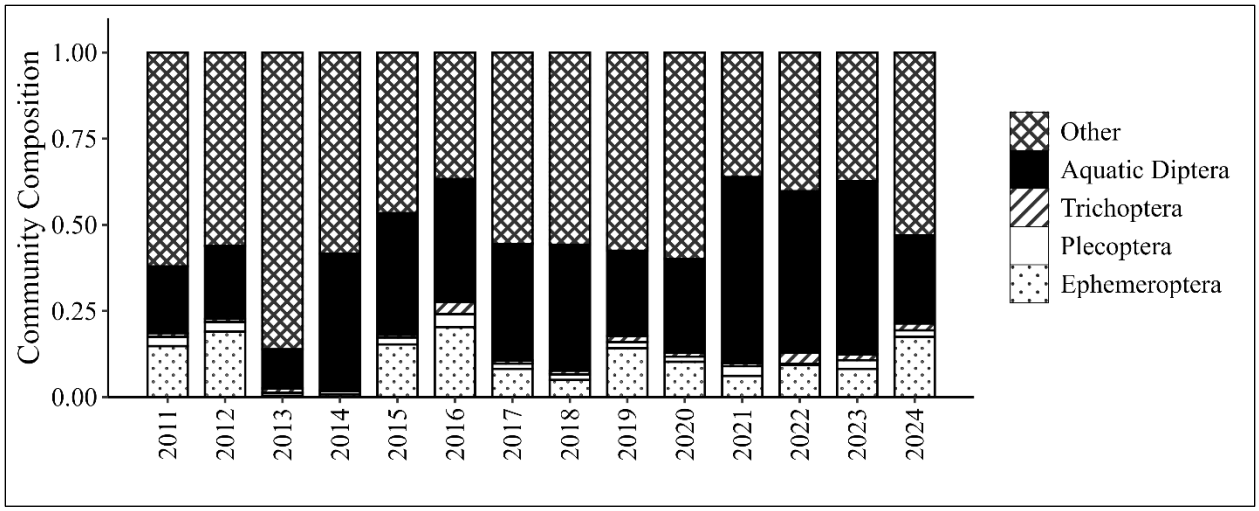

Figure 30.–East Fork Slate Creek BMI community composition, 2011–2024.

Sediment Element Concentrations

Of the 2024 East Fork Slate Creek sediment samples, one of the three samples contained concentrations of As, Cd, Ni, and Zn above the PEC freshwater sediment toxicity guidelines, the other two samples had element concentrations between the TEC and PEC guidelines (Figure 31), as seen in previous years. Cu concentrations also were above or near the TEC similar to previous years. The remaining sample concentrations were below the guidelines and within ranges previously observed 2011–2023.

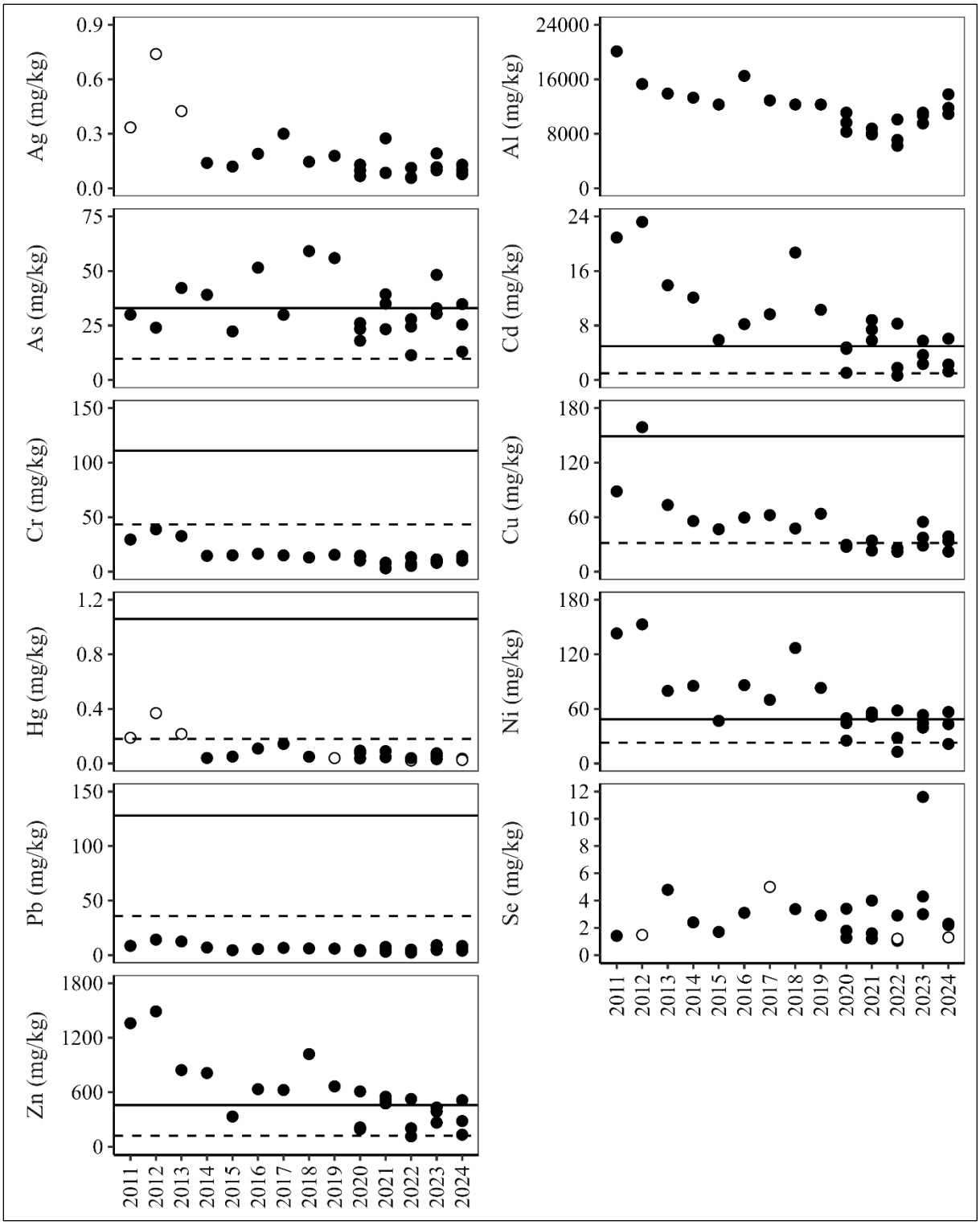

Figure 31.–East Fork Slate Creek sediment element concentrations, 2011–2024.

Note: Elements undetected (o) are presented at the method reporting limit. The dashed line represents TEC and solid line represents the PEC; guidelines are not published for Ag, Al, or Se (Buchman 2008).

Upper Slate Creek Sample Point 1

Periphyton: Chlorophyll Density and Composition

The 2024 Upper Slate Creek SP1 estimate mean Chl-a density was 0.74 mg/m^2, the second lowest observed 2011–2023 (Table 11; Figure 32). The samples contained about 94% Chl-a, 5% Chl-c, and 1% Chl-b, consistent with composition observed in previous years (Figure 33).

Table 11.–Upper Slate Creek SP1 mean chlorophylls a, b, and c densities, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chl-a (mg/m^2)	0.76	1.26	2.12	1.09	0.63	3.86	0.83	2.57	7.47	1.13	2.89	1.47	5.11	0.74
Chl-b (mg/m^2)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Chl-c (mg/m^2)	0.05	0.07	0.13	0.06	0.09	0.42	0.04	0.36	0.60	0.06	0.46	0.10	0.47	0.05

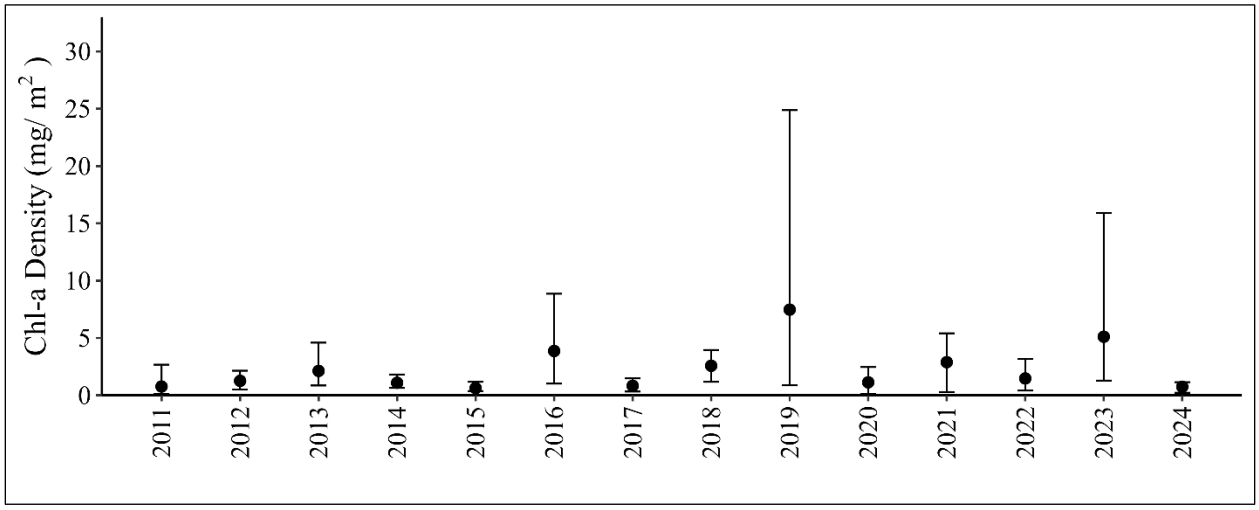

Figure 32.–Upper Slate Creek SP1 mean chlorophyll a densities, 2011–2024.
Note: Minimum, mean, and maximum values shown.

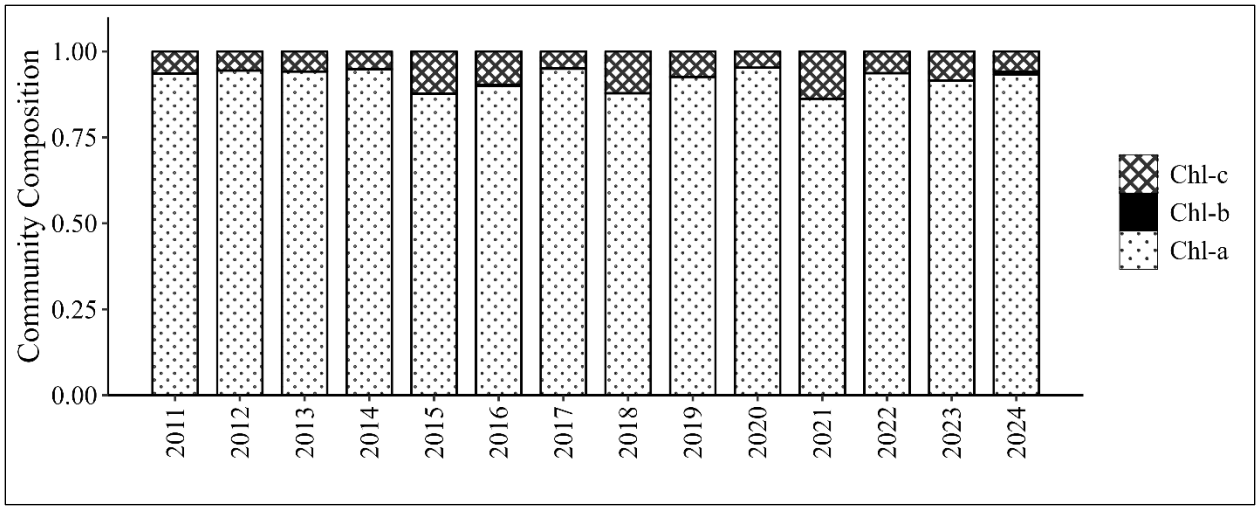

Figure 33.–Upper Slate Creek SP1 mean proportions of chlorophylls a, b, and c, 2011–2024.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Upper Slate Creek SP1 BMI estimate mean density is 3,586 BMI/m^2 and we identified 36 taxa, the second highest BMI density observed 2011–2023 (Table 12; Figure 34, 35). We estimate mean EPT density at 2,939 EPT/m^2, the highest observed, accounting for 82% of the samples. Dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (36%) and Diptera of the family Chironomidae (11%).

Table 12.–Upper Slate Creek SP1 BMI data summaries, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	1,589	1,534	2,074	1,969	2,568	1,631	1,237	1,053	1,357	691	1,141	860	2,079	2,939
Mean BMI density (per m^2)	2,523	2,256	2,880	3,125	3,776	2,398	2,029	1,548	1,634	973	1,409	1,246	2,412	3,586
Number of EPT Taxa	18	21	20	20	19	15	19	18	18	15	18	20	18	21
Number of BMI Taxa	33	39	34	36	31	28	30	31	24	25	28	29	27	36
% EPT	63	68	72	63	68	68	61	68	83	71	81	69	86	82

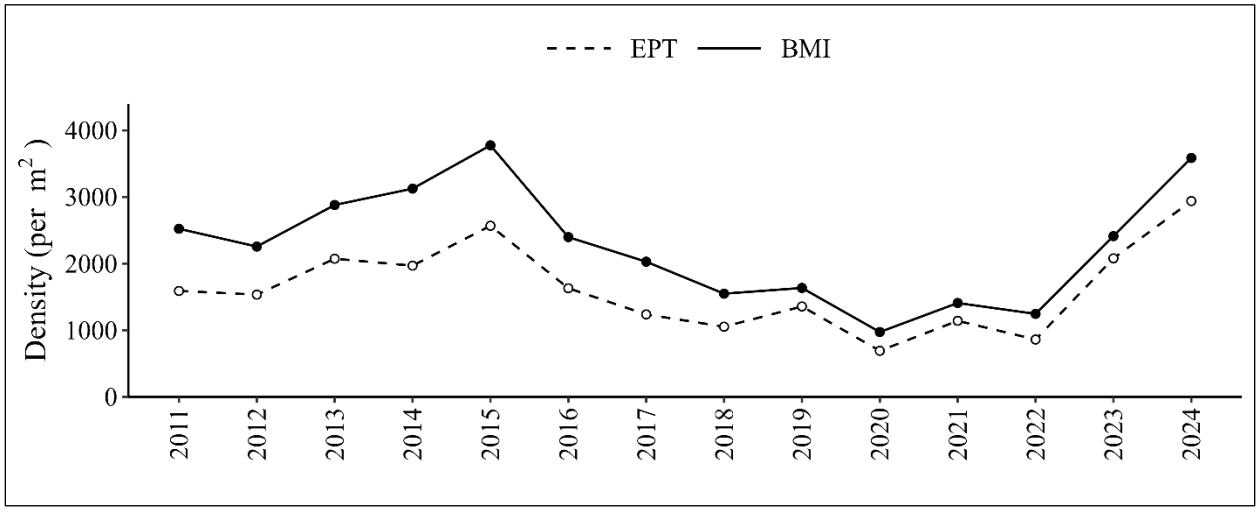

Figure 34.–Upper Slate Creek SP1 mean BMI and EPT densities, 2011–2024.

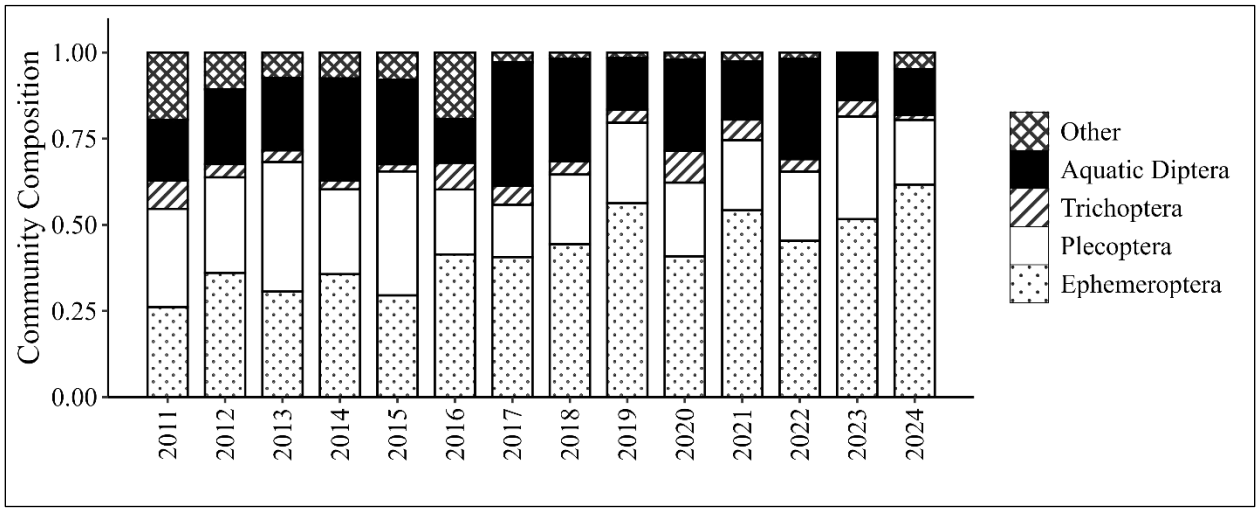

Figure 35.–Upper Slate Creek SP1 BMI community composition, 2011–2024.

Sediment Element Concentrations

The 2024 Upper Slate Creek SP1 sediment samples contained concentrations of Ni and one of the three samples had a Cr concentration above the PEC freshwater sediment toxicity guideline (Figure 36); As, Cr, Cd, Cu, and Zn concentrations were near or above the TEC as in previous years. All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines, and within ranges previously observed 2011–2023.

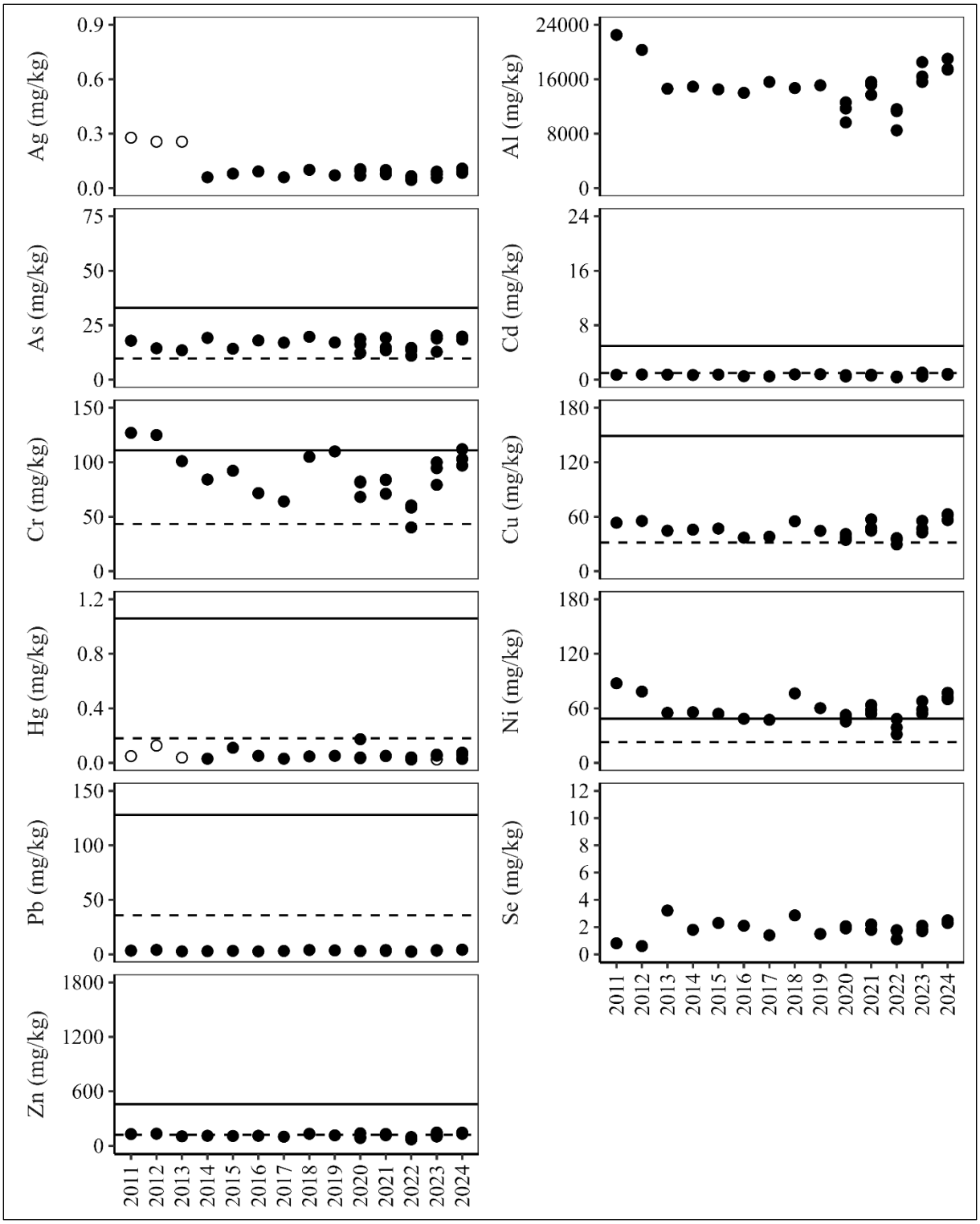

Figure 36.–Upper Slate Creek SP1 sediment element concentrations, 2011–2024.

Note: Elements undetected (o) are presented at the method reporting limit. The dashed line represents TEC and solid line represents the PEC; guidelines are not published for Ag, Al, or Se (Buchman 2008).

Upper Slate Creek Sample Point 2

Periphyton: Chlorophyll Density and Composition

The 2024 Upper Slate Creek SP2 estimate mean Chl-a density was 1.74 mg/m^2, higher than at SP1 (0.74 mg/m^2), and samples contained about 94% Chl-a, 6% Chl-c, and 0% Chl-b.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Upper Slate Creek SP2 BMI mean density estimate is 4,609 BMI/m^2, higher than at SP1 (3,586 BMI/m^2), and we identified 30 taxa. We estimate mean EPT density at 3,733 EPT/m^2 accounting for 81% of the samples, similar to the SP1 results (82%). Dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (39%) and Ephemeroptera of the genus *Cinygmula* (12%).

Sediment Element Concentrations

We initiated sediment collection in 2024 at Upper Slate Creek SP2 and found the sediment samples contained Ni concentrations above the PEC freshwater sediment toxicity guideline (Table 13); As, Cr, and Cu concentrations were near or above the TEC, similar to the Upper Slate Creek SP1 results. All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 13.–Upper Slate Creek SP2 mean sediment element concentrations, 2024.

Year	Al (mg/kg)	As (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Pb (mg/kg)	Hg (mg/kg)	Ni (mg/kg)	Se (mg/kg)	Ag (mg/kg)	Zn (mg/kg)
2024	13067	15.4	0.430	66.4	35.8	1.76	0.024	49.2	1.23	0.036	79.0

JOHNSON CREEK

Lower Johnson Creek

Benthic Macroinvertebrate Density and Community Composition

We initiated BMI collection at Lower Johnson Creek in 2024 and found the BMI estimate mean density is 1,885 BMI/m^2 and we identified 22 taxa. We estimate mean EPT density at 1,546 EPT/m^2 accounting for 82% of the samples. Dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (54%) and Diptera of the family Chironomidae (13%).

Adult Salmon Counts

In 2024, during six peak count surveys in Lower Johnson Creek we counted 1,584 pink salmon, 20 chum salmon, and 65 coho salmon (Table 14).

Table 14.–Lower Johnson Creek adult salmon counts, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Pink salmon	17,499	5,016	8,186	189	51,325	428	23,239	434	4,996	2,737	15,393	1,087	4,145	1,584
Chum salmon	21	99	17	3	0	39	0	2	334	5	0	22	0	20
Coho salmon	33	90	64	107	88	24	83	36	94	49	549	43	39	65

Note: The 2022–2024 data presented are from peak counts during the spawning seasons; all other years include complete spawning season counts.

Sediment Element Concentrations

The 2024 Lower Johnson Creek sediment samples contained As, Cu, Ni, and Zn concentrations near or above the TEC freshwater sediment toxicity guidelines, as in previous years (Figure 37). All other element concentrations were below the PEC and TEC guidelines, and within ranges previously observed 2011–2023.

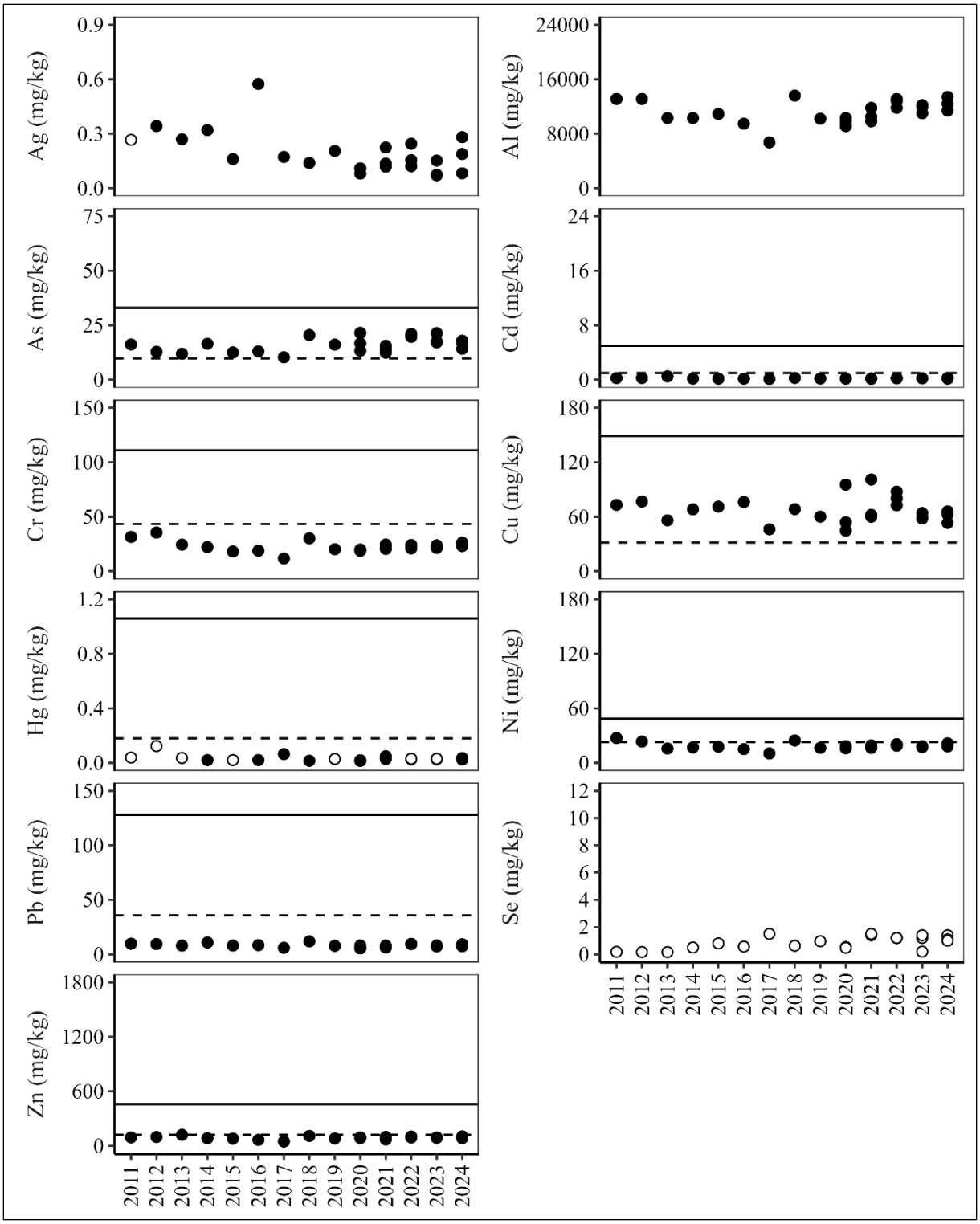

Figure 37.–Lower Johnson Creek sediment element concentrations, 2011–2024.

Note: Elements undetected (o) are presented at the method reporting limit. The dashed line represents TEC and solid line represents the PEC; guidelines are not published for Ag, Al, or Se (Buchman 2008).

Upper Johnson Creek Sample Point 1

Benthic Macroinvertebrate Density and Community Composition

The 2024 Upper Johnson Creek SP1 BMI estimate mean density is 3,453 BMI/m^2 and we identified 32 taxa, within the middle range of BMI densities and taxa observed 2011–2023 (Table 15; Figure 38, 39). We estimate mean EPT density at 2,661 EPT/m^2, within the upper range observed, accounting for 77% of the samples. Dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (34%) and Diptera of the family Chironomidae (20%).

Table 15.–Upper Johnson Creek SP1 BMI data summaries, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	2,054	2,540	3,422	1,834	1,980	2,614	1,480	2,008	2,358	1,438	2,108	2,032	6,161	2,661
Mean BMI density (per m^2)	3,735	3,968	5,265	2,658	2,789	3,681	2,901	2,996	3,369	1,892	2,634	2,473	7,086	3,453
Number of EPT Taxa	14	14	24	21	17	21	19	20	18	19	18	13	23	20
Number of BMI Taxa	24	28	34	32	28	32	33	31	25	31	29	20	31	32
% EPT	55	64	65	69	71	71	51	67	70	76	80	82	87	77

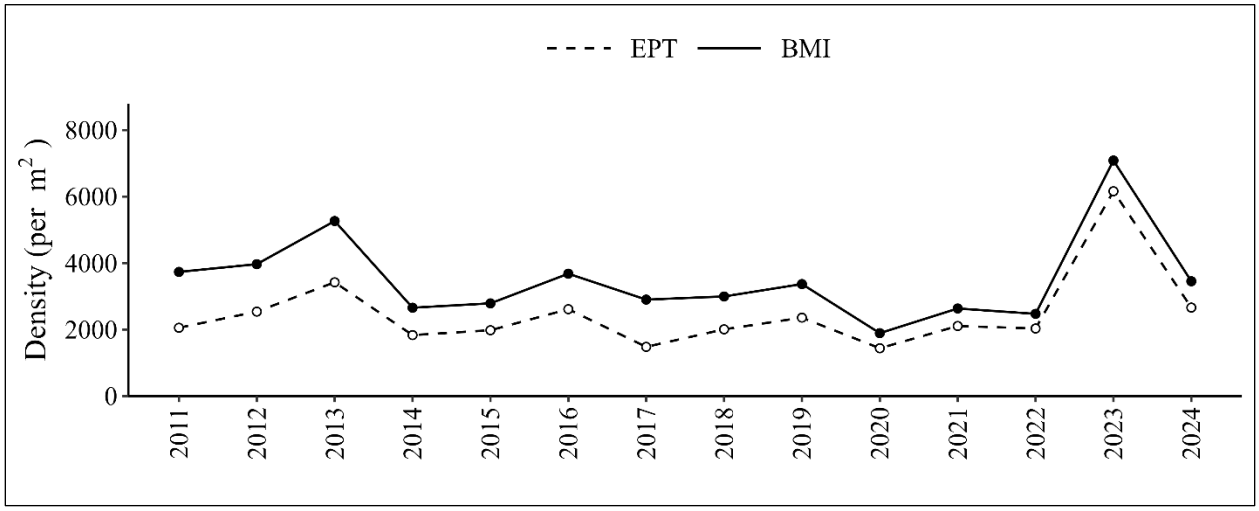

Figure 38.–Upper Johnson Creek SP1 mean BMI and EPT densities, 2011–2024.

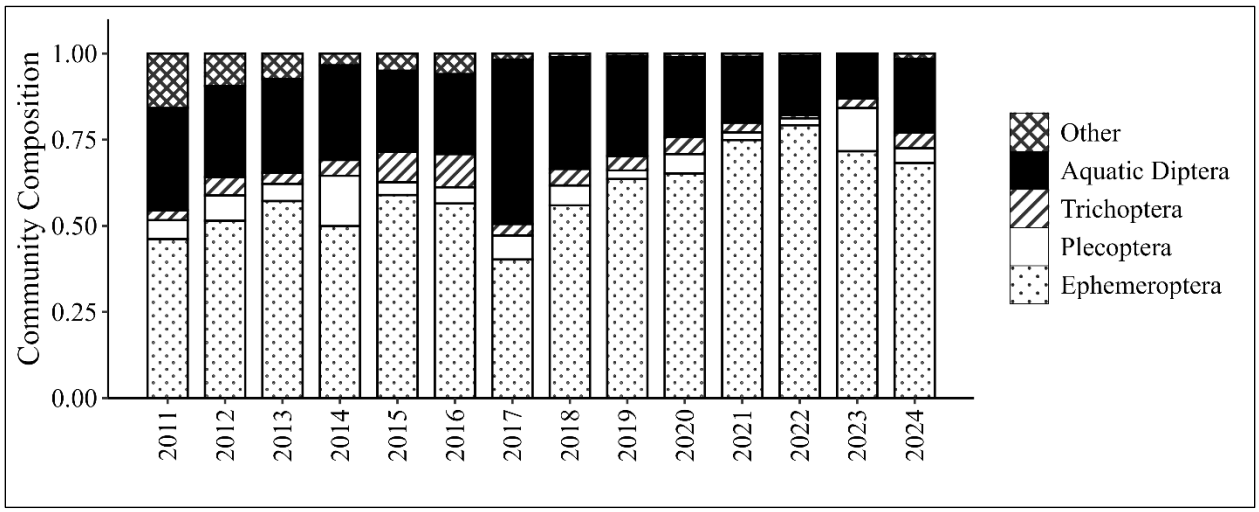

Figure 39.–Upper Johnson Creek SP1 BMI community composition, 2011–2024.

Sediment Element Concentrations

We initiated sediment collection in 2024 at Upper Johnson Creek SP1 and found the sediment samples contained Cu concentrations above the TEC freshwater sediment toxicity guidelines (Table 16). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 16.–Upper Johnson Creek SP1 mean sediment element concentrations, 2024.

Year	Al (mg/kg)	As (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Pb (mg/kg)	Hg (mg/kg)	Ni (mg/kg)	Se (mg/kg)	Ag (mg/kg)	Zn (mg/kg)
2024	7227	1.3	0.069	13.8	43.8	1.22	0.024	9.1	1.13	0.025	33.4

Upper Johnson Creek Sample Point 2

Benthic Macroinvertebrate Density and Community Composition

The 2024 Upper Johnson Creek SP2 BMI mean density estimate is 5,466 BMI/m^2 and we identified 36 taxa. We estimate mean EPT density at 4,263 EPT/m^2 accounting for 78% of the samples. Dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (32%) and Diptera of the family Chironomidae (18%). The SP2 BMI mean density is nearly double the SP1 mean density (3,453 BMI/m^2) and the percentage of EPT is similar (77%).

SHERMAN CREEK

Lower Sherman Creek Sample Point 1

Periphyton: Chlorophyll Density and Composition

The 2024 Lower Sherman Creek SP1 estimate mean Chl-a density was 2.50 mg/m^2, within the lower range of mean densities 2011–2023 (Table 17; Figure 40). The samples contained about 89% Chl-a, 10% Chl-c, and 1% Chl-b, consistent with composition observed in previous years (Figure 41).

Table 17.–Lower Sherman Creek SP1 mean chlorophylls a, b, and c densities, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chl-a (mg/m^2)	7.60	2.54	3.69	1.34	1.36	3.70	3.86	2.64	2.74	6.23	7.41	4.11	5.13	2.50
Chl-b (mg/m^2)	0.69	0.93	0.00	0.00	0.00	0.74	0.00	0.00	0.09	0.49	0.00	0.02	0.00	0.04
Chl-c (mg/m^2)	0.49	0.08	0.51	0.18	0.17	0.33	0.56	0.33	0.49	0.47	1.15	0.48	0.52	0.30

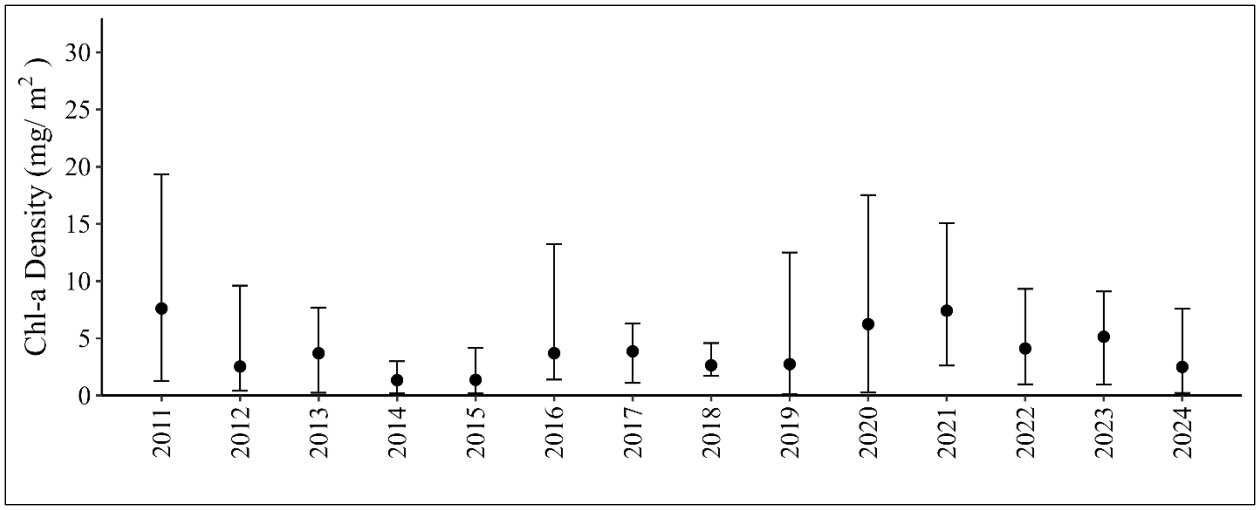

Figure 40.–Lower Sherman SP1 mean chlorophyll a densities, 2011–2024.
Note: Minimum, mean, and maximum values shown.

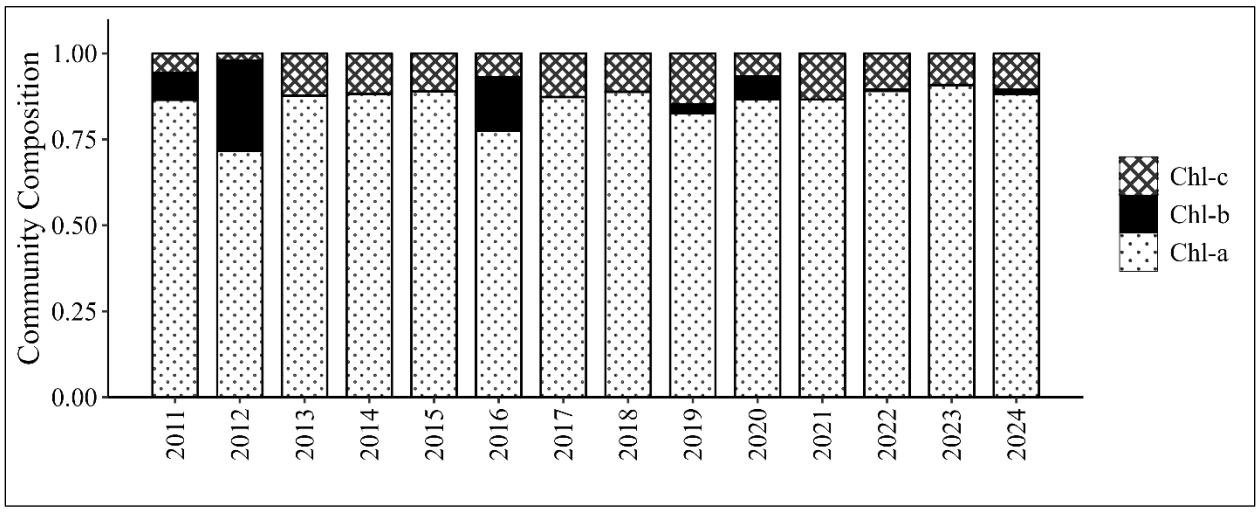

Figure 41.–Lower Sherman SP1 mean proportions of chlorophylls a, b, and c, 2011–2024.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Lower Sherman Creek SP1 BMI estimate mean density is 3,699 BMI/m^2 and we identified 22 taxa, the second highest BMI density observed 2011–2023 (Table 19; Figure 44, 45). We estimate mean EPT density at 1,333 EPT/m^2, within the upper range observed, accounting for 36% of the samples. The dominant taxa were Clitellata (worms) of the genus *Oligochaeta* (50%) and Ephemeroptera (mayflies) of the genus *Baetis* (24%).

Table 18.–Lower Sherman Creek SP1 BMI data summaries, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	358	1,804	1,149	423	446	274	313	629	809	382	880	1,108	1,676	1,333
Mean BMI density (per m^2)	1,118	2,733	1,796	3,023	1,651	6,839	1,009	912	1,263	1,272	989	1,504	1,970	3,699
Number of EPT Taxa	15	18	16	13	13	13	13	16	14	14	14	15	15	12
Number of BMI Taxa	26	31	28	30	26	26	25	26	25	24	20	24	19	22
% EPT	32	66	64	14	27	4	31	69	64	30	89	74	85	36

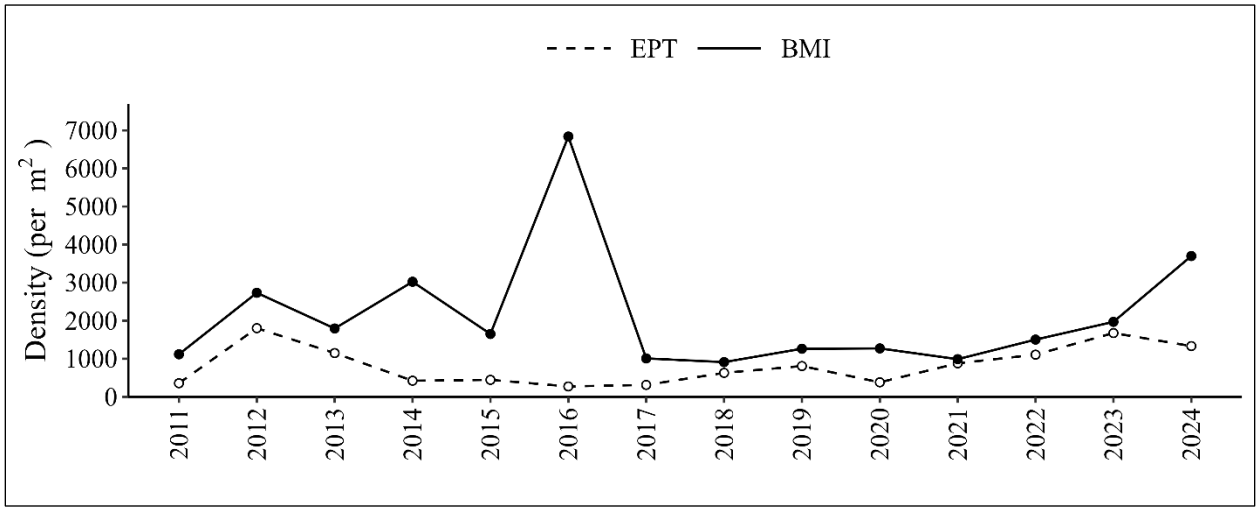

Figure 42.–Lower Sherman Creek SP1 mean BMI and EPT densities, 2011–2024.

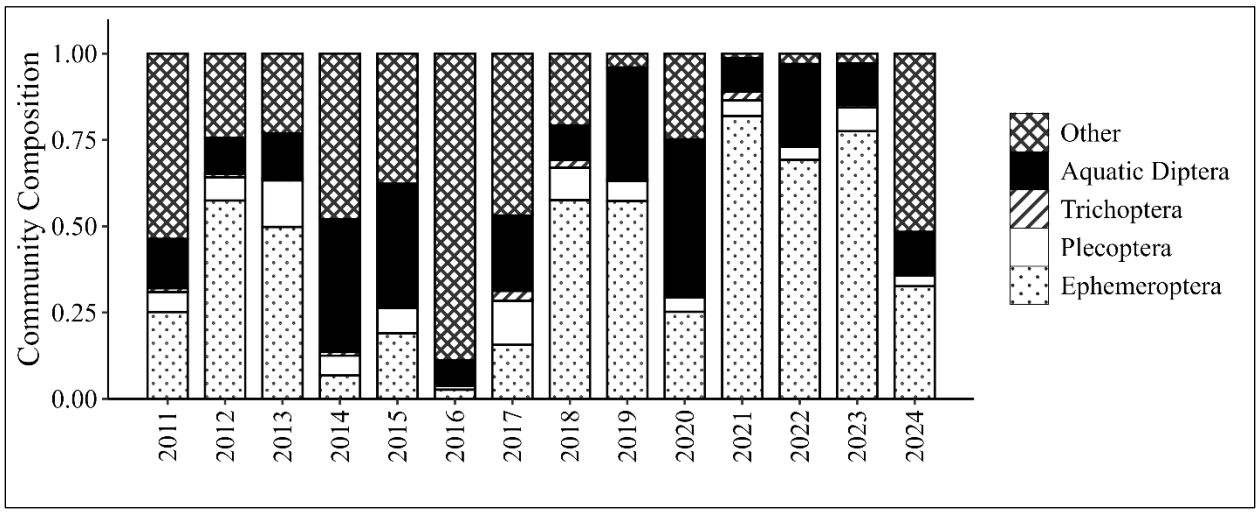

Figure 43.–Lower Sherman Creek SP1 BMI community composition, 2011–2024.

Adult Salmon Counts

In 2024, during three surveys we counted 60 pink salmon and zero chum salmon in Lower Sherman Creek (Table 21). Since coho salmon do not use Sherman Creek, we did not survey for adults.

Table 19.–Lower Sherman Creek adult salmon counts, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Pink salmon	4,605	1,608	4,981	70	2,798	26	5,690	86	2,816	190	1,020	19	1,432	60
Chum salmon	0	0	12	0	1	5	122	7	147	0	0	0	11	0

Note: The 2022–2024 data presented are from peak counts during the spawning seasons; all other years include complete spawning season counts.

Sediment Element Concentrations

Among the 2024 Lower Sherman Creek SP1 sediment samples, one of the three sample results included an As concentration above the PEC freshwater sediment toxicity guideline (Figure 48); otherwise, the As, Cu, Cr, Ni, and Zn concentrations were near or above the TEC, as in previous years. All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines, and within ranges previously observed 2011–2023.

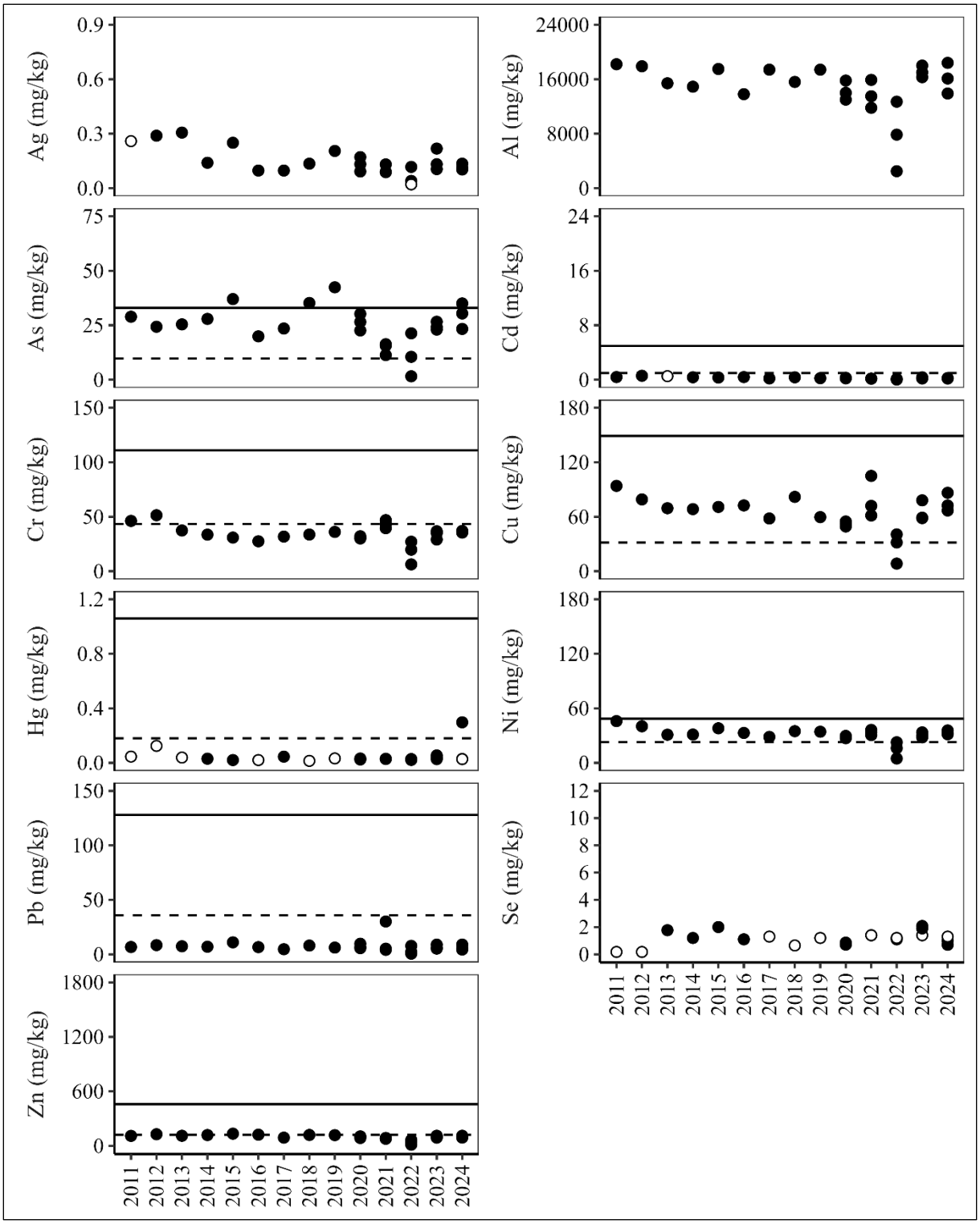

Figure 44.–Lower Sherman Creek SP1 sediment element concentrations, 2011–2024.

Note: Elements undetected (o) are presented at the method reporting limit. The dashed line represents TEC and solid line represents the PEC; guidelines are not published for Ag, Al, or Se (Buchman 2008).

Lower Sherman Creek Sample Point 2

Periphyton: Chlorophyll Density and Composition

The 2024 Lower Sherman Creek SP2 estimate mean Chl-a density was 2.19 mg/m^2, similar to SP1 (2.50 mg/m$_2$) and within the middle range of mean densities 2011–2023 (Table 18; Figure 42). The samples contained about 89% Chl-a, 10% Chl-c, and 1% Chl-b, consistent with composition observed in previous years (Figure 43).

Table 20.–Lower Sherman Creek SP2 mean chlorophylls a, b, and c densities, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chl-a (mg/m^2)	5.61	0.67	2.87	1.32	1.62	1.42	1.15	1.49	2.12	7.60	5.54	2.54	2.66	2.19
Chl-b (mg/m^2)	0.02	0.01	0.00	0.00	0.15	0.04	0.00	0.00	0.00	0.87	0.00	0.00	0.01	0.00
Chl-c (mg/m^2)	0.32	0.09	0.32	0.12	0.26	0.18	0.12	0.19	0.29	0.49	0.72	0.24	0.26	0.26

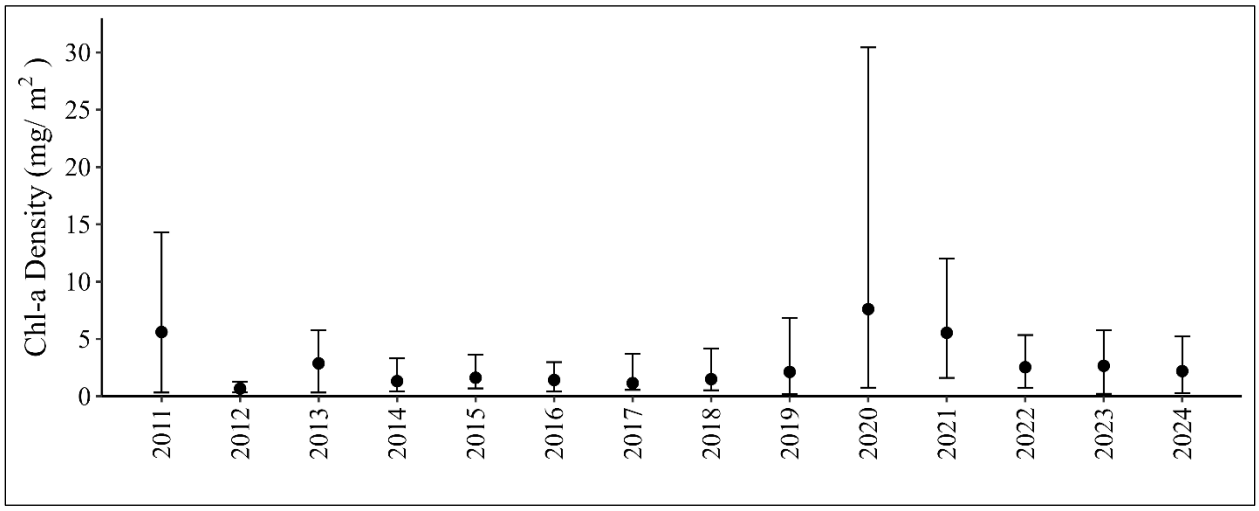

Figure 45.–Lower Sherman SP2 mean chlorophyll a densities, 2011–2024.
Note: Minimum, mean, and maximum values shown.

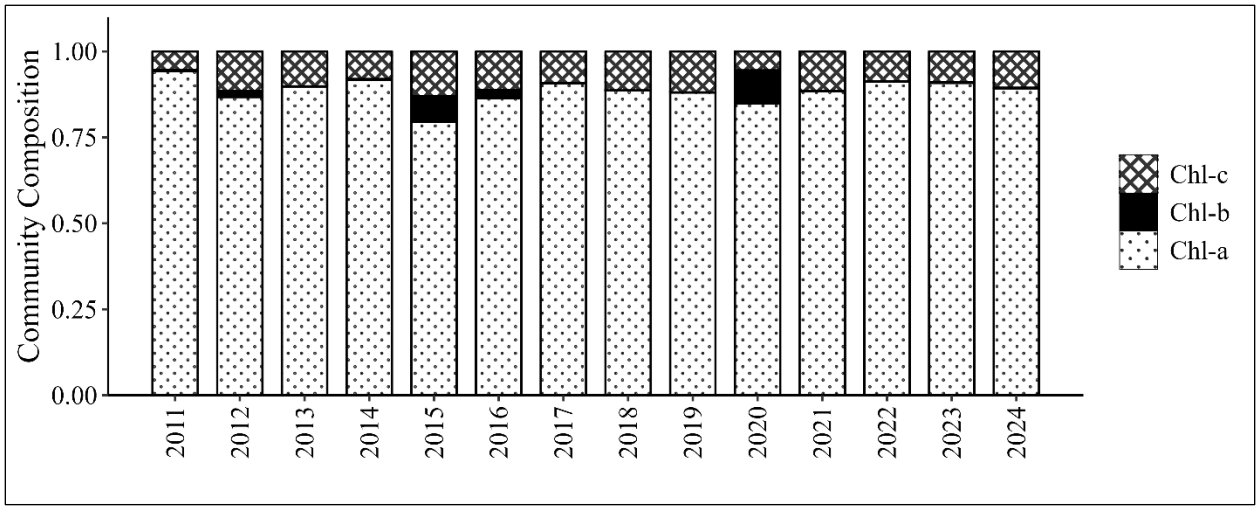

Figure 46.–Lower Sherman SP2 mean proportions of chlorophylls a, b, and c, 2011–2024.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Lower Sherman Creek SP2 BMI estimate mean density is 2,878 BMI/m^2 and we identified 29 taxa, within the upper range of BMI densities observed 2011–2023 (Table 20; Figure 46, 47). We estimate mean EPT density at 1,873 EPT/m^2, within the upper range observed, accounting for 65% of the samples. The dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (40%) and Clitellata (worms) of the genus *Oligochaeta* (25%)

Table 21.–Lower Sherman Creek SP2 BMI data summaries, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	1,255	2,230	2,437	142	402	225	120	856	1,380	383	598	932	2,959	1,873
Mean BMI density (per m^2)	1,651	2,823	3,385	1,185	1,609	1,873	428	973	1,624	871	720	1,156	3,453	2,878
Number of EPT Taxa	17	26	25	16	13	13	14	18	15	16	18	12	16	19
Number of BMI Taxa	30	36	39	28	23	23	26	21	25	23	26	18	24	29
% EPT	76	79	72	12	25	12	28	88	85	44	83	81	86	65

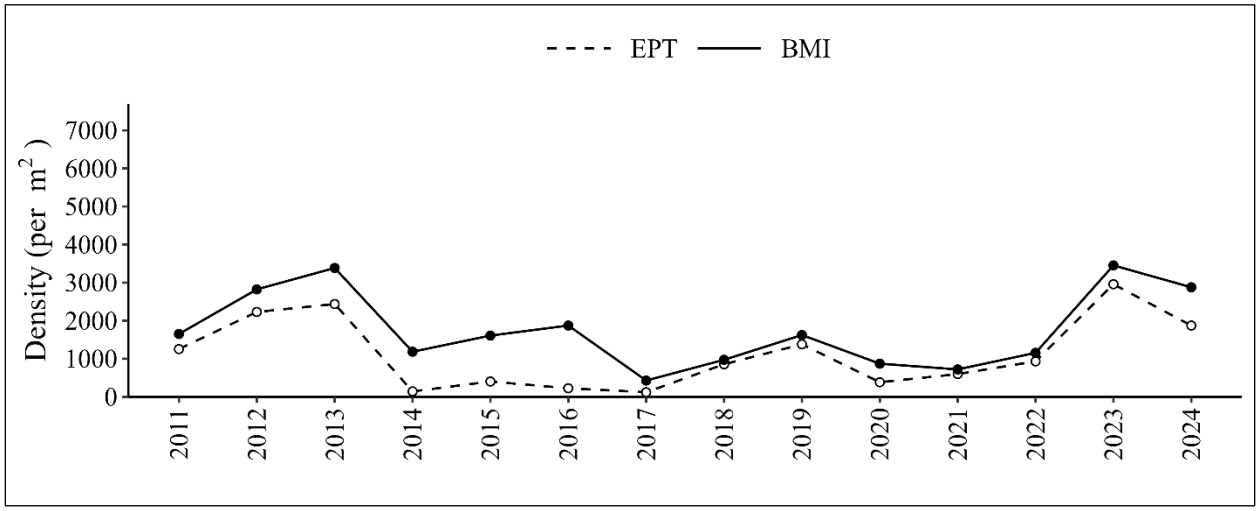

Figure 47.–Lower Sherman Creek SP2 mean BMI and EPT densities, 2011–2024.

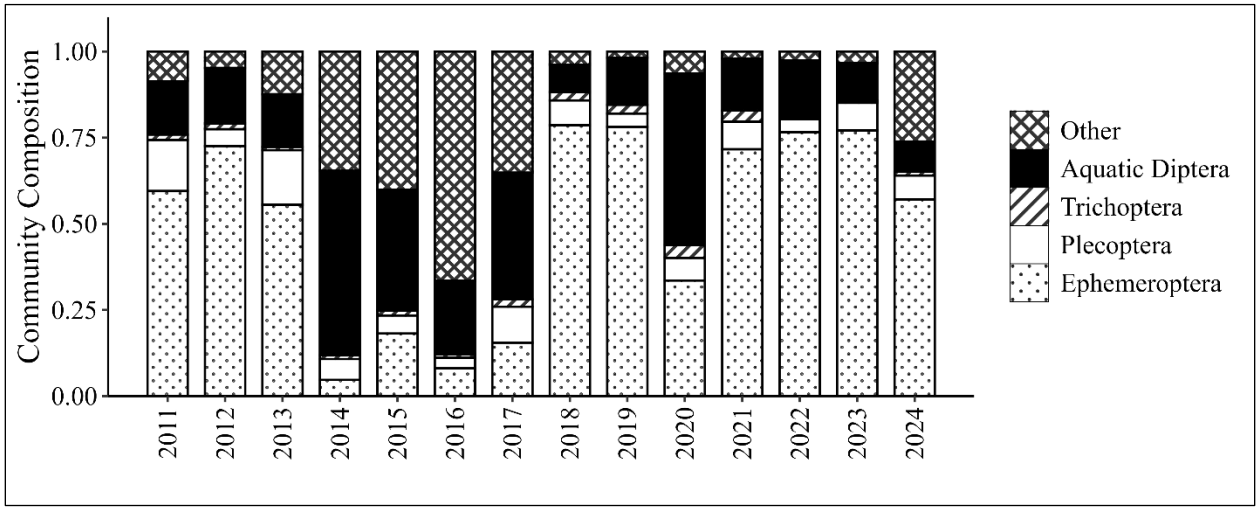

Figure 48.–Lower Sherman Creek SP2 BMI community composition, 2011–2024.

Upper Sherman Creek

Periphyton: Chlorophyll Density and Composition

The 2024 Upper Sherman Creek mean Chl-a density was 3.78 mg/m^2 and samples contained about 86% Chl-a, 12% Chl-c, and 0% Chl-b.

Benthic Macroinvertebrate Density and Community Composition

We initiated BMI sampling at Upper Sherman Creek in 2024 and found the BMI mean density estimate is 4,414 BMI/m^2 and we identified 32 taxa. We estimate mean EPT density at 3,840 EPT/m^2 accounting for 87% of the samples. Dominant taxa were Ephemeroptera (mayflies) of the genus *Baetis* (60%) and Diptera of the family Chironomidae (11%).

Sediment Element Concentrations

We initiated sediment collection in 2024 at Upper Sherman Creek and found the sediment samples contained As concentrations above the PEC freshwater sediment toxicity guideline (Table 22); Cr, Cu, Ni, and Zn concentrations were near or above the TEC, similar to Lower Sherman Creek SP2. All other element concentrations were below the TEC freshwater sediment toxicity guidelines.

Table 22.–Upper Sherman Creek mean sediment element concentrations, 2024.

Year	Al (mg/kg)	As (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Pb (mg/kg)	Hg (mg/kg)	Ni (mg/kg)	Se (mg/kg)	Ag (mg/kg)	Zn (mg/kg)
2024	19833	49.1	0.119	34.3	80.1	6.95	0.027	35.5	1.27	0.148	109

COMPARISONS AMONG SITES

Periphyton: Chlorophyll Density

For all sites sampled in 2024, mean Chl-a density was in the lower ranges or the lowest values observed since 2011, possibly a result of July rainfall being 2.5 times above average prior to sampling. The new reference site Upper Slate Creek SP2 mean Chl-a density was 1.74 mg/m^2, and over double the density compared to the other reference reaches of Upper Slate Creek and West Fork Slate Creek. The new reference reach in Upper Sherman Creek mean Chl-a density was 3.78 mg/m^2, slightly higher than Lower Sherman Creek SP1 and SP2.

Among the four Slate Creek sites sampled from 2011 to 2024, mean Chl-a densities generally followed a similar trend; except Lower Slate Creek spiked in 2019, and West Fork Slate Creek had elevated mean densities in 2021 and 2023 (Figure 49). The Slate Creek sample sites vary in physical and environmental conditions, from 9 m elevation at Lower Slate Creek to 244 m elevation at Upper Slate Creek SP2, and with lake influence at East Fork and Lower Slate Creeks, variation among sampling sites is expected. East Fork Slate Creek mean Chl-a densities show the least variability, possibly due to controlled streamflows and changes in seasonal water temperature related to the Outfall 002 discharge.

Comparing the data from Lower Sherman Creek SP1 and SP2 between 2011 and 2024, mean Chl-a densities followed a similar trend with SP1 generally having a slightly higher mean Chl-a density each year (Figure 50). The Sherman Creek sample sites are located at 12 m elevation (SP1) and at 26 m elevation (SP2); cobble is dominant at SP2 and gravel at SP1 due to difference in stream gradients. Increased scour due to a larger stream gradient at SP2 could explain slightly lower Chl-a mean density observed at the site most years.

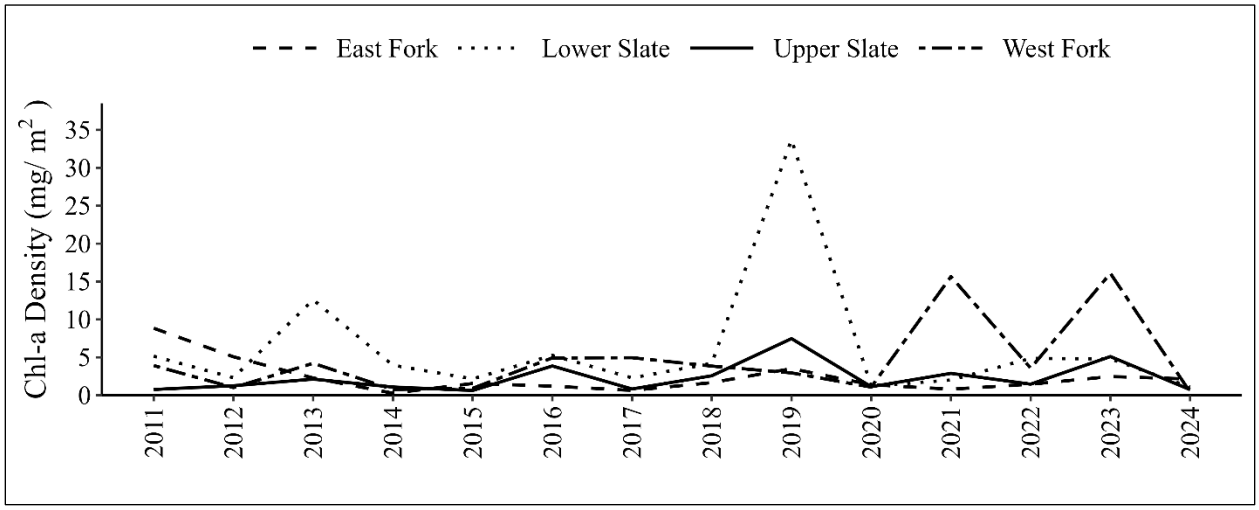

Figure 49.–East Fork Slate, Lower Slate, Upper Slate SP1, and West Fork Slate Creek mean chlorophyll a densities, 2011–2024.

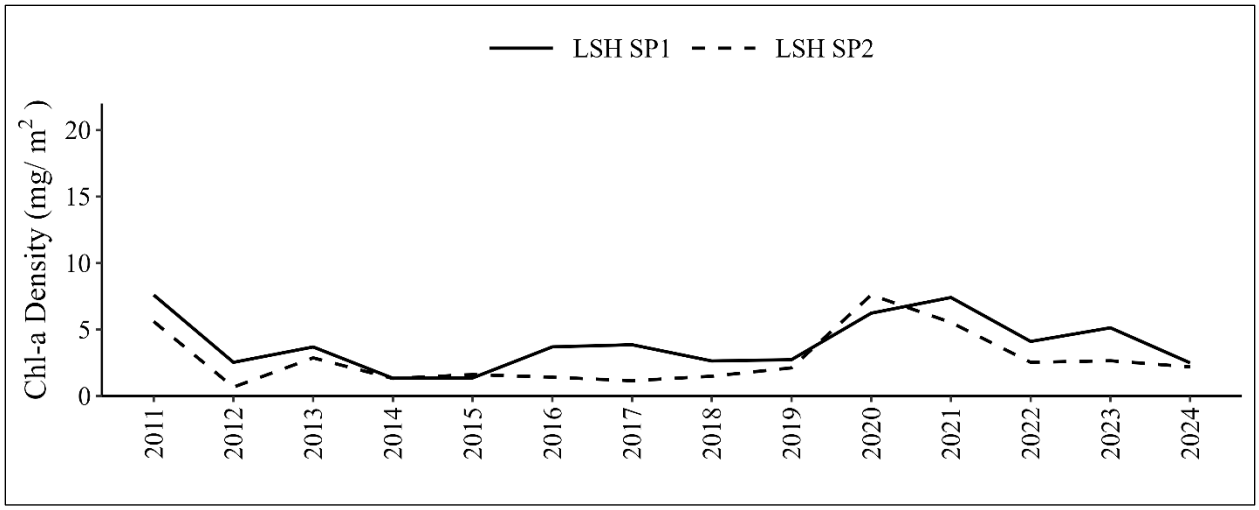

Figure 50.–Lower Sherman Creek Sample Point 1 and 2 mean chlorophyll a densities, 2011–2024.

EPT Density

For all sites sampled in 2024, EPT density was in the middle to upper range observed since 2011, possibly a result of average rainfall in early spring with slightly warmer spring temperatures prior to sampling. Benthic macroinvertebrate densities and percent EPT at Slate, Sherman, and Johnson Creeks generally follow a similar trend 2011–2024. The new reference site Upper Slate Creek SP2 had the highest EPT density of all Slate Creek sites. Similarly, new reference sites Upper Johnson Creek SP2 and Upper Sherman Creek had nearly double the EPT density compared to their associated downstream biomonitoring sites.

Among the four Slate Creek sites sampled from 2011 to 2024, mean EPT densities and BMI taxa abundance followed similar trends (Figure 51, 52). Reduced EPT densities in 2014 at East Fork Slate Creek and at Lower Sherman Creek 2014–2018 may have been a result of the presence of white material on the streambed, related to Outfalls 001 and 002. East Fork Slate Creek continues to have the lowest percent EPT among samples, though usually a greater density due to other benthic macroinvertebrates present such as pea clams—a result of upstream lake influence.

Benthic macroinvertebrate sampling occurred at Upper Johnson Creek near the mine camp from 2011 to 2024; 2024 was the first year BMI sampling occurred at new reaches in: Upper Johnson Creek SP2 and in Lower Johnson Creek. EPT densities were highest at Upper Johnson Creek SP2 and lowest at Lower Johnson Creek and all Johnson Creek sites had a similar percentage of EPT per sample. The Johnson Creek sample sites vary in physical and environmental conditions, from 9 m elevation at Lower Johnson Creek to 256 m elevation at Upper Johnson Creek, and variation among sampling sites is expected.

Comparing the data from Lower Sherman Creek SP1 and SP2 between 2011 and 2024, mean EPT densities and BMI taxa abundance followed similar trends with SP2 having a slightly higher EPT density each year (Figure 53, 54).

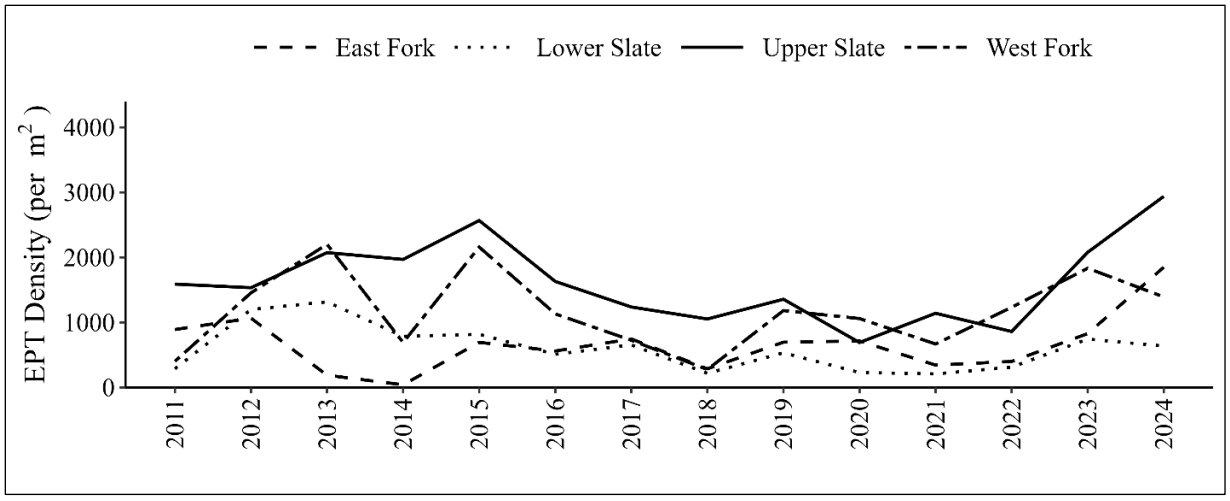

Figure 51.–East Fork Slate, Lower Slate, Upper Slate SP1, and West Fork Slate Creek EPT densities, 2011–2024.

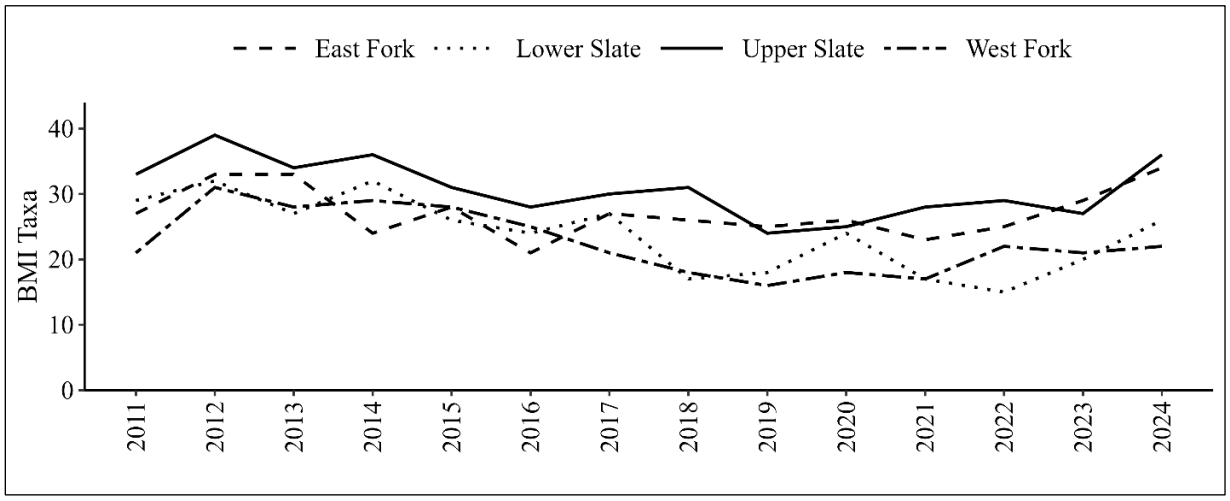

Figure 52.– East Fork Slate, Lower Slate, Upper Slate SP1, and West Fork Slate Creek BMI taxa richness, 2011–2024.

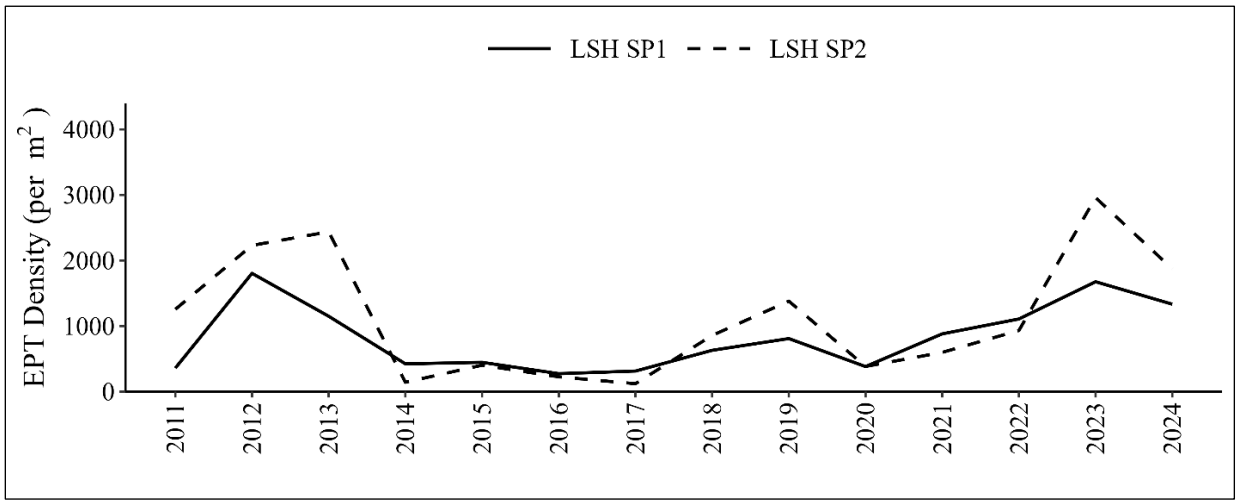

Figure 53.–Lower Sherman Creek SP1 and SP2 EPT densities, 2011–2024.

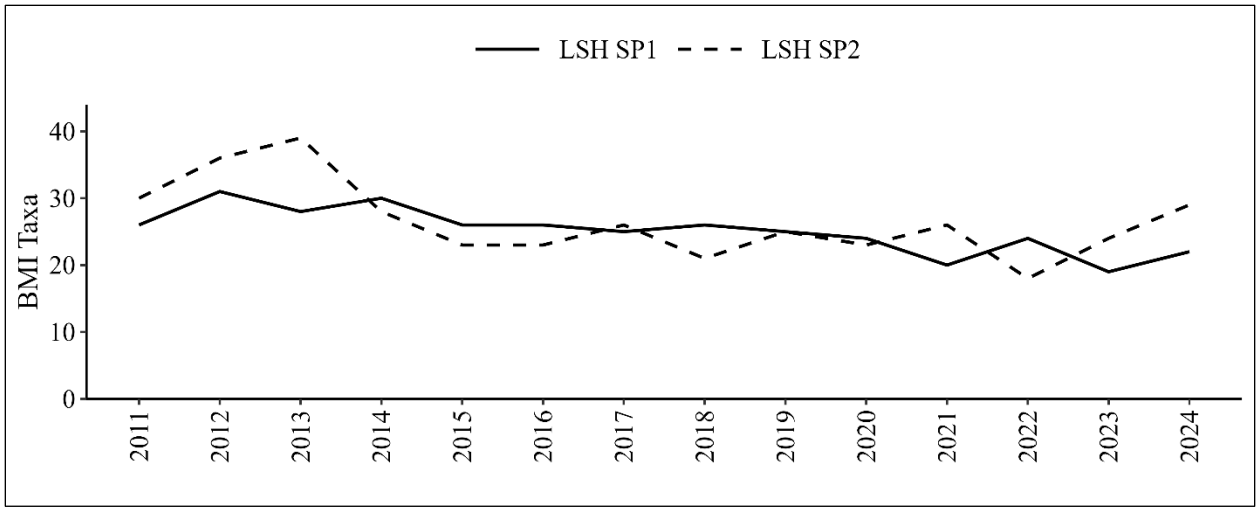

Figure 54.–Lower Sherman Creek SP1 and SP2 BMI taxa richness, 2011–2024.

Sediment Element Concentrations

Among the 2024 sediment samples, mean element concentrations are generally lower than the PEC freshwater sediment toxicity guidelines, except for concentrations of As, Cd, Ni, Zn in East Fork Slate Creek, As in Upper Sherman Creek, and Ni in reference sites West Fork Slate, Upper Slate SP1, and Upper Slate SP2 (Figure 55). In 2024, for most sites As, Cd, Cu, Ni, and Zn concentrations were near or above the TEC freshwater sediment toxicity guidelines.

Among the Slate Creek sediment samples collected from 2011 to 2024, element concentrations at all sites, except East Fork Slate Creek, follow a similar trend. Slate Creek sites have naturally elevated concentrations of As, Cd, Cu, Ni, and Zn concentrations that are near or above the TEC freshwater sediment toxicity guidelines with Ni regularly above the PEC in reference and mine influence sampling sites (Figure 56–58). East Fork Slate Creek element concentrations are generally more variable with elevated As, Cd, Ni, Se, and Zn concentrations relative to the other sampling sites that occasionally are above the PEC, possibly related to the graphitic phyllite (acid-generating rock) uncovered during initial TTF dam construction nearly 20 years ago potentially elevating element concentrations observed, compared to the upstream reference sites.

From 2011 to 2024 sediment element concentration sampling occurred at Lower Johnson Creek, 2024 was the first year sediment sampling occurred at Upper Johnson Creek. While both sites had concentrations of Cu above the TEC freshwater toxicity guidelines Lower Johnson Creek has higher concentrations of As, Ni, and Zn also near or above the TEC.

From 2011 to 2024 sediment element concentration sampling occurred at Lower Sherman Creek SP1, 2024 was the first year sediment sampling occurred at the new reference reach in Upper Sherman Creek. Both sites have similar element concentrations with As near or above the PEC and concentrations of Cu, Cr, Ni, and Zn near or above the TEC freshwater sediment toxicity guidelines.

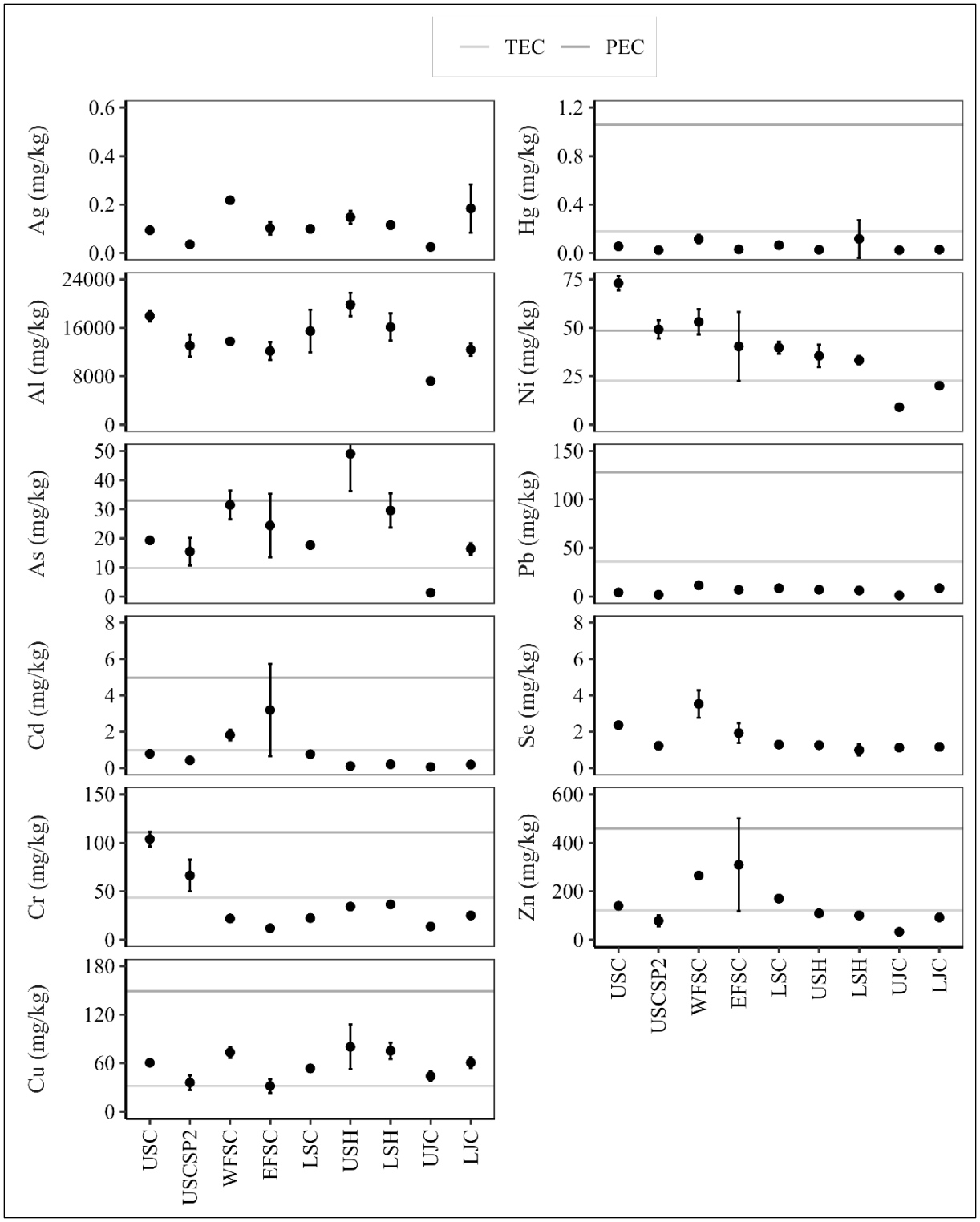

Figure 55.–East Fork Slate (EFSC), West Fork Slate (WFSC), Lower Slate (LSC), Upper Slate SP1 (USC), Upper Slate SP2 (USCSP2), Lower Johnson (LJC), Upper Johnson Creek SP1 (UJC), Lower Sherman (LSH), and Upper Sherman (USH) Creeks element concentrations +/- 1 SD, 2024.

Note: Elements undetected (o) are presented at the method reporting limit. TEC and PEC guidelines are not published for Ag, Al, or Se (Buchman 2008).

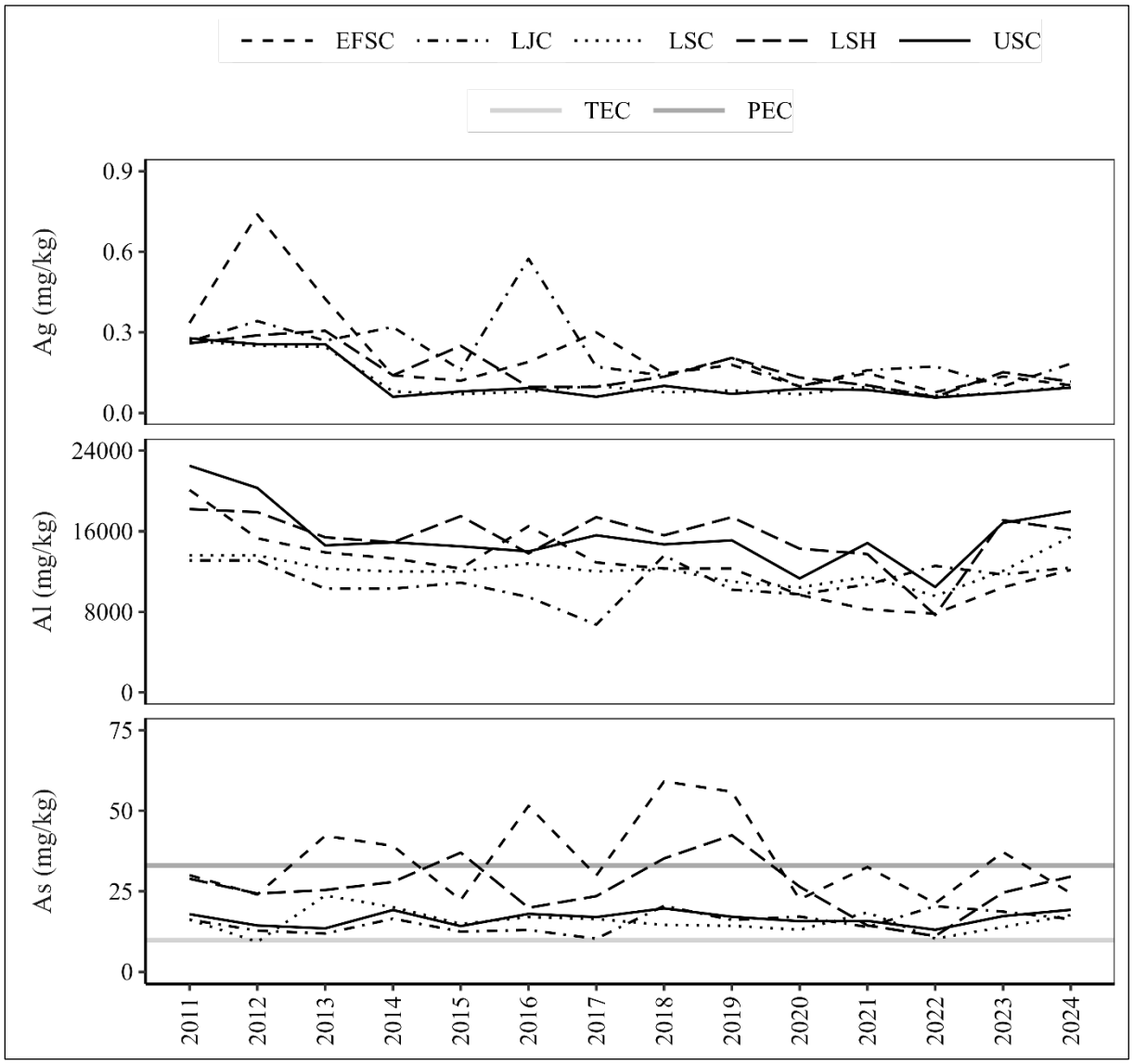

Figure 56.–East Fork Slate (EFSC), Lower Johnson (JLC), Lower Slate (LSC), Lower Sherman SP1 (LSH), and Upper Slate SP1 (USC) Creeks mean Ag, Al, and As concentrations, 2011–2024.

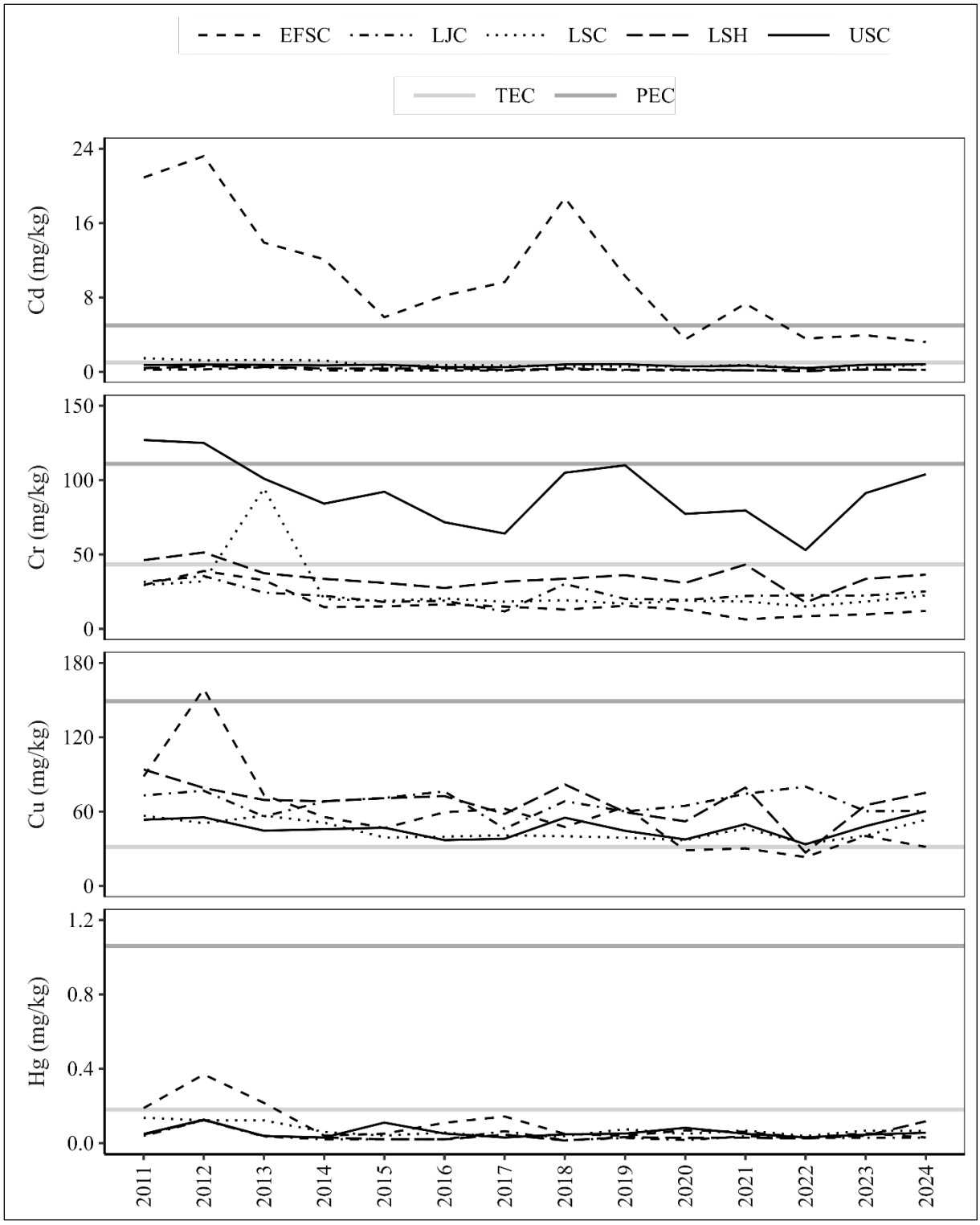

Figure 57.–East Fork Slate (EFSC), Lower Johnson (LJC), Lower Slate (LSC), Lower Sherman SP1 (LSH), and Upper Slate SP1 (USC) Creeks mean Cd, Cr, Cu, and Hg concentrations, 2011–2024.

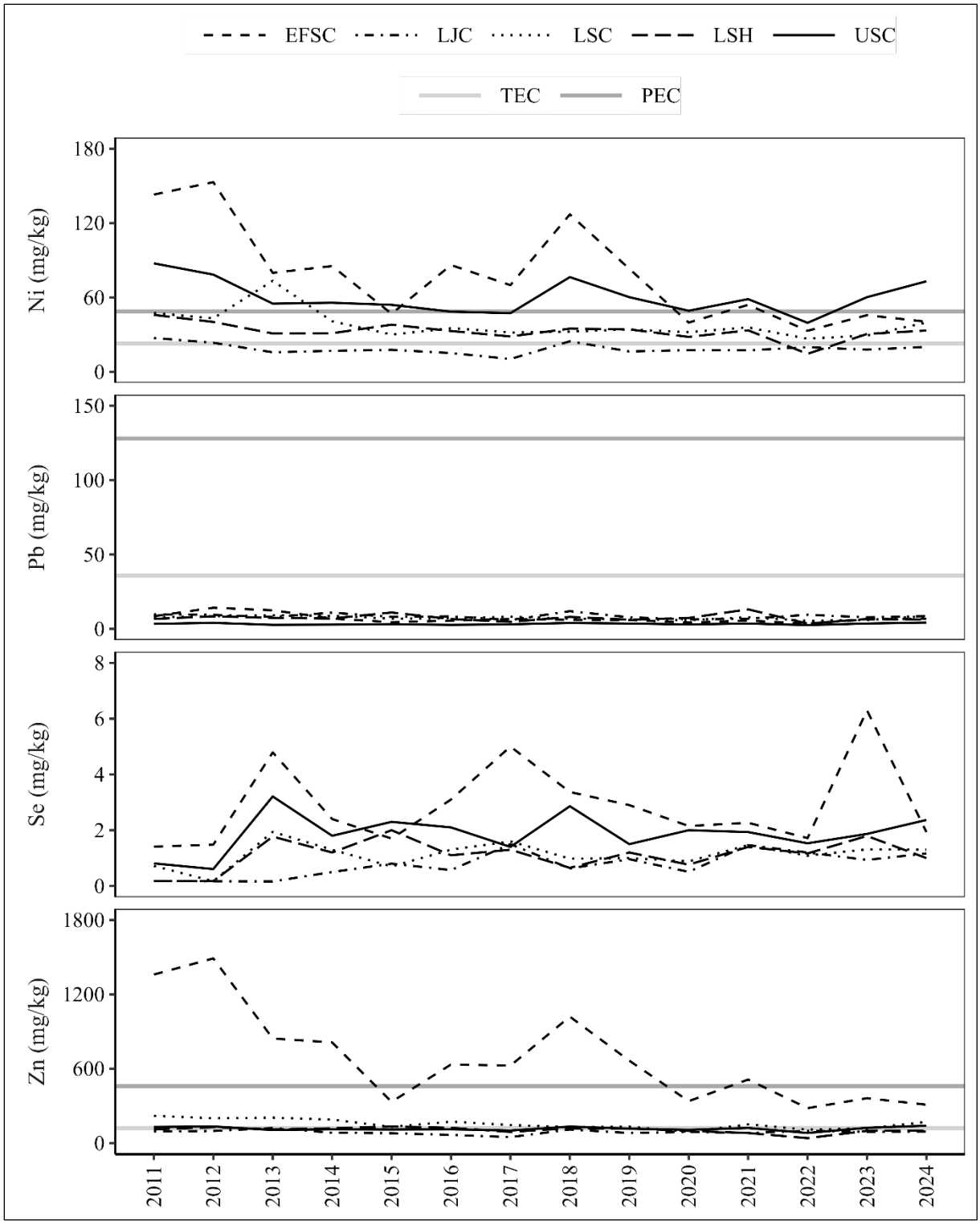

Figure 58.–East Fork Slate (EFSC), Lower Johnson (LJC), Lower Slate (LSC), Lower Sherman SP1 (LSH), and Upper Slate SP1 (USC) Creeks mean Ni, Pb, Se, and Zn concentrations, 2011–2024.

REFERENCES CITED

Albrecht, G. 2018. Fish and fish habitat investigations at Kensington Gold Mine. Alaska Department of Fish and Game, Technical Report No. 17-12, Douglas, AK.

Albrecht, G. 2019. Aquatic studies at Kensington Gold Mine, 2018. Alaska Department of Fish and Game, Technical Report No. 19-06, Douglas, AK.

APHA (American Public Health Association). 2012. Standard methods for the examination of water and wastewater. 22nd edition. American Public Health Association, American Water Works Association, and Water Environment Federation, District of Columbia.

Aquatic Science Inc. 2006. Kensington Gold Project NPDES permit AK-0050571 annual water quality monitoring summary Volume 1: Aquatic resource surveys 2005. Prepared for Coeur Alaska Inc., Juneau, AK.

Aquatic Science Inc. 2007. Kensington Gold Project NPDES permit AK-0050571 annual water quality monitoring summary Volume 1: Aquatic resource surveys 2006. Prepared for Coeur Alaska Inc., Juneau, AK.

Aquatic Science Inc. 2008. NPDES Annual report 2007 Volume 1: Aquatic resources. Prepared for Coeur Alaska, Inc., Juneau, AK.

Aquatic Science Inc. 2009a. NPDES annual report 2008 Volume 1: Aquatic resources. Prepared for Coeur Alaska Inc., Juneau, AK.

Aquatic Science Inc. 2009b [sic][t]. NPDES annual report 2009 Volume 1: Aquatic resources. Prepared for Coeur Alaska, Inc., Juneau, AK.

Aquatic Science Inc. 2009c. Johnson Creek fish habitat channel types and aquatic capability. Prepared for Coeur Alaska, Inc., Juneau, AK.

Aquatic Science Inc. 2009d. Out-migrating salmon fry, Sherman, Johnson and Slate Creeks. Prepared for ADF&G, Permit No. SF-2009-059, Juneau, AK.

Aquatic Science Inc. 2011. NPDES annual report 2010 Volume 1: Aquatic resources. Prepared for Coeur Alaska, Inc., Juneau, AK.

Barbour, M. T., J. Gerritsen, B. D. Snyder, and J. B. Stribling. 1999. Rapid bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates and fish. 2nd edition. EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

Brewster, B.P. 2016. Aquatic studies at Kensington Gold Mine, 2015. Alaska Department of Fish and Game, Technical Report No. 16-03, Douglas, AK.

Buchman, M. F. 2008. NOAA Screening Quick Reference Tables, U.S. National Oceanic and Atmospheric Administration, Office of Response and Restoration Division, Report 08-1, Seattle, WA.

Coeur. 2022. Final plan of operations for the Kensington Gold Project. Prepared for the U.S. Department of Agriculture Forest Service, Juneau Ranger District, Tongass National Forest, Juneau, AK.

Giefer, J., and S. Graziano. 2024. Catalog of waters important for spawning, rearing, or migration of anadromous fishes – Southeastern Region, effective June, 2024. Alaska Department of Fish and Game, Special Publication No. 24-04, Anchorage.

Kane, W. J. 2020. Aquatic studies at Kensington Gold Mine, 2019. Alaska Department of Fish and Game, Technical Report No. 20-04, Douglas, AK.

Kane, W. J. 2021. Aquatic studies at Kensington Gold Mine, 2020. Alaska Department of Fish and Game, Technical Report No. 21-03, Douglas, AK.

Kane, W. J. 2022. Aquatic studies at Kensington Gold Mine, 2021. Alaska Department of Fish and Game, Technical Report No. 22-07, Douglas, AK.

[t] Published February 2010.

REFERENCES CITED, CONTINUED

Kanouse, K. M. 2015. Aquatic studies at Kensington Gold Mine, 2014. Alaska Department of Fish and Game, Technical Report No. 15-02, Douglas, AK.

Kanouse, K. M. and J. Zutz. 2017. Aquatic studies at Kensington Gold Mine, 2016. Alaska Department of Fish and Game, Technical Report No. 17-02, Douglas, AK.

Kondolf, G. M. and M. G. Wolman. 1993. The sizes of salmonid spawning gravels. Water Resources Research. 29(7):2275–2285.

Lindgren, J. W. and E. M. King. 2023. Aquatic studies at Kensington Mine, 2022. Alaska Department of Fish and Game, Technical Report No. 23-06, Douglas, AK.

Lindgren, J. W. and E. M. King. 2024. Aquatic studies at Kensington Mine, 2023. Alaska Department of Fish and Game, Technical Report No. 24-06, Douglas, AK.

Lotspeich, F. B. and F. H. Everest. 1981. A new method for reporting and interpreting textural composition of spawning gravel. U.S. Department of Agriculture Forest Service, Pacific Northwest Forest and Range Experimental Station, Research Note PNW-369.

Magurran, A. 1988. Ecological diversity and its measurement. Princeton University Press, Princeton, NJ.

Merritt, R. W. and K. W. Cummins, editors. 1996. An introduction to the aquatic insects of North America. 3rd edition. Kendall/Hunt Publishing Co., Dubuque, IA.

National Weather Service. 2024. The Juneau climate summary for the Year 2023. National Oceanic Atmospheric and Administration, Juneau Weather Forecast Office. https://www.weather.gov/source/ajk/mobile/climate.html (Accessed January 18, 2024).

Paustian, S. 2010. Channel type user guide revision 2010. U.S. Forest Service, R-10-TP-26.

Piston, A. W., and S. C. Heinl. 2018. Pink salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 18-14, Anchorage.

Qu, X., N. Wu, T. Tang, Q. Cai, and Y. S. Park. 2010. Effects of heavy metals on benthic macroinvertebrate communities in high mountain streams. International Journal of Limnology 46(4):291–302.

Shirazi, M. A., W. K. Seim, and D. H. Lewis. 1981. Characterization of spawning gravel and stream system evaluation. Pages 227-278 [*In*] Proceedings from the conference Salmon-spawning gravel, a renewable resource in the Pacific Northwest held October 6–7, 1980, Seattle, WA.

Stewart, K. W. and M. W. Oswood. 2006. The stoneflies (Plecoptera) of Alaska and Western Canada. The Caddis Press, Columbus, OH.

Tchounwou, P. B., C. G. Yedjou, A. K. Patlolla, and D. J. Sutton. 2012. Heavy metal toxicity and the environment. Pages 133–164 [*In*] Experimentia Supplementum: Molecular, Clinical and Environmental Toxicology: Volume 3: Environmental Toxicology. Springer Basel.

USDA. 2022. Supplemental Environmental Impact Statement Plan of Operations Amendment 1 for the Kensington Mine Final Record of Decision. Prepared by the U.S. Department of Agriculture, Forest Service Alaska Region for the Minerals Program Manager of the Tongass National Forrest, Juneau, AK.

USEPA (U.S. Environmental Protection Agency). 1997. Method 446.0: In vitro determination of chlorophylls a, b, c_1 + c_2 and pheopigments in marine and freshwater algae by visible spectrophotometry. Adapted by Elizabeth J. Arar. Revision 1.2.U.S. Environmental Protection Agency, Office of Research and Development, National Exposure Research Laboratory, Cincinnati, OH.

Valentine, B. E. 1995. Stream substrate quality for salmonids: guidelines for sampling, processing, and analysis. California Department of Forestry and Fire Protection, Coast Cascade Regional Office, Santa Rosa, CA.

Timothy, J. and K. M. Kanouse. 2013. Aquatic studies at Kensington Gold Mine, 2012. Alaska Department of Fish and Game, Technical Report No. 12-10, Douglas, AK.

REFERENCES CITED, CONTINUED

Timothy, J. and K. M. Kanouse. 2012. Aquatic studies at Kensington Mine, 2011. Alaska Department of Fish and Game, Technical Report No. 11-08, Douglas, AK.

Timothy, J. and K. M. Kanouse. 2014. Aquatic studies at Kensington Gold Mine, 2013. Alaska Department of Fish and Game, Technical Report No. 14-01, Douglas, AK.

USDA (U.S. Department of Agriculture), U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, Alaska Department of Natural Resources, and the City and Borough of Juneau. 2021. Final supplemental environmental impact statement Plan of Operations Amendment 1 for the Kensington Mine, July 2021, Tongass National Forest report R10-MB-500d, Juneau, AK.

Willson-Naranjo, G. R, and K. M. Kanouse. 2016. Kensington Gold Mine tailings treatment facility studies. Alaska Department of Fish and Game, Technical Report No. 16-02, Douglas, AK.

Zollinger, H. L. 1981. Engineering Technical Note No. 2: Estimating sediment concentrations by Imhoff Cone in runoff water from silt loam soils. U.S. Department of Agriculture, Natural Resources Conservation Service, Boise, ID.

Zutz, J. 2018. Aquatic studies at Kensington Gold Mine, 2017. Alaska Department of Fish and Game, Technical Report No. 18-02, Douglas, AK.

APPENDIX A: CHLOROPHYLL DATA

Appendix A.1.–Lower Slate Creek chlorophylls a, b, and c densities, 2011–2024.

	07/29/11			07/25/12		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.21	0.05	0.00	1.60	0.13	0.07
	1.28	0.02	0.11	4.06	0.00	0.39
	0.85	0.01	0.07	2.03	0.00	0.18
	3.31	0.08	0.25	0.96	0.00	0.04
	11.85	3.11	0.30	2.56	0.04	0.22
	18.05	0.42	0.91	0.92	0.00	0.01
	0.72	0.13	0.00	1.49	0.13	0.13
	0.43	0.05	0.00	2.35	0.12	0.19
	8.54	0.39	0.58	6.19	0.05	0.54
	6.30	0.03	0.38	0.96	0.00	0.06
mean	5.15	0.43	0.26	2.31	0.05	0.18
maximum	18.05	3.11	0.91	6.19	0.13	0.54
minimum	0.21	0.01	0.00	0.92	0.00	0.01

	07/31/13			07/30/14		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	14.10	0.00	1.56	0.00	0.00	0.00
	20.72	0.00	3.11	9.29	3.22	0.48
	10.89	0.00	1.01	1.45	0.00	0.23
	17.84	0.00	2.66	12.18	5.27	0.38
	2.14	0.00	0.24	0.75	0.00	0.05
	6.09	0.00	0.95	4.70	0.00	0.67
	15.49	0.00	1.99	2.88	0.00	0.49
	12.71	0.00	1.58	1.82	0.00	0.15
	11.32	0.00	1.87	0.73	0.00	0.07
	14.63	0.00	1.46	5.87	0.00	0.51
mean	12.59	0.00	1.64	3.97	0.85	0.30
maximum	20.72	0.00	3.11	12.18	5.27	0.67
minimum	2.14	0.00	0.24	0.00	0.00	0.00

	07/28/15			07/26/16		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.45	0.10	0.01	0.60	0.00	0.12
	3.06	0.00	0.28	15.27	0.00	2.14
	0.95	0.09	0.04	6.41	0.00	0.97
	0.85	0.00	0.06	2.35	0.00	0.22
	0.72	0.13	0.00	9.51	0.76	0.88
	2.24	0.44	0.12	2.88	0.66	0.20
	9.93	0.00	1.13	3.52	0.00	0.40
	0.19	ND	ND	2.03	0.00	0.28
	2.88	0.14	0.28	5.34	0.67	0.36
	0.32	0.01	0.00	4.70	0.00	0.65
mean	2.16	0.10	0.21	5.26	0.21	0.62
maximum	9.93	0.44	1.13	15.27	0.76	2.14
minimum	0.19	0.00	0.00	0.60	0.00	0.12

- continued -

	07/24/17			08/07/18		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	3.84	0.33	0.19	2.35	0.00	0.42
	1.71	0.00	0.27	3.31	0.00	0.56
	1.60	0.00	0.26	7.16	0.00	1.27
	2.14	0.00	0.41	3.63	0.00	0.59
	2.14	0.06	0.09	1.17	0.00	0.19
	4.91	1.86	0.16	3.10	0.08	0.26
	0.87	0.00	0.14	4.45	0.00	0.61
	2.14	0.00	0.36	9.61	0.30	1.21
	1.60	0.05	0.11	1.50	0.00	0.26
	2.01	0.00	0.32	5.77	0.00	0.91
mean	2.30	0.23	0.23	4.21	0.04	0.63
maximum	4.91	1.86	0.41	9.61	0.30	1.27
minimum	0.87	0.00	0.09	1.17	0.00	0.19

	08/01/19			07/29/20		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	6.73	0.00	1.02	0.55	0.00	0.02
	66.22	0.00	12.14	0.28	0.00	0.00
	4.49	0.00	0.71	0.96	0.07	0.03
	22.11	0.00	3.96	1.71	0.00	0.12
	15.38	0.00	3.57	0.73	0.04	0.04
	94.62	0.00	17.74	0.64	0.00	0.01
	8.12	0.00	1.59	2.15	0.00	0.20
	39.41	0.00	6.52	0.27	0.03	0.00
	14.95	0.00	2.64	4.17	0.98	0.13
	65.04	0.00	15.02	0.73	0.00	0.00
mean	33.71	0.00	6.49	1.22	0.11	0.06
maximum	94.62	0.00	17.74	4.17	0.98	0.20
minimum	4.49	0.00	0.71	0.27	0.00	0.00

	07/29/21			07/25/22		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	3.95	0.00	0.61	5.66	0.00	0.81
	3.31	0.00	0.61	3.63	0.00	0.22
	3.31	0.40	0.33	6.91	0.00	0.88
	1.42	0.00	0.17	6.73	0.00	0.95
	4.81	0.00	0.6	0.77	0.09	0.10
	0.55	0.00	0.12	12.50	0.00	1.84
	0.43	0.00	0.07	0.53	0.07	0.15
	0.43	0.00	0.07	5.13	0.48	0.53
	1.55	0.00	0.28	0.85	0.00	0.11
	0.29	ND	ND	5.95	0.23	0.56
mean	2.01	0.04	0.32	4.87	0.09	0.62
maximum	4.81	0.40	0.61	12.50	0.48	1.84
minimum	0.29	0.00	0.07	0.53	0.00	0.10

- continued -

	07/26/23			07/23/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*	Chl-*a*	Chl-*b*	Chl-*c*
	1.71	0.00	0.32	2.88	0.00	0.28
	11.85	0.57	1.60	0.22	ND	ND
	2.14	0.00	0.37	0.28	0.00	0.00
	4.70	0.00	0.47	**0.22**	ND	ND
	4.91	0.00	0.57	1.82	0.00	0.20
	11.96	0.00	1.73	0.23	0.00	0.03
	0.85	0.00	0.04	0.22	0.04	0.10
	5.45	0.00	0.72	0.21	0.02	0.10
	2.88	0.00	0.33	2.67	0.00	0.30
	1.60	0.00	0.20	2.03	0.00	0.26
mean	4.81	0.06	0.64	1.08	0.01	0.16
maximum	11.96	0.57	1.73	2.88	0.04	0.30
minimum	0.85	0.00	0.04	0.21	0.00	0.00

Note: Bold values are the spectrophotometer estimated detection limit, chlorophyll *a* not detected.

Appendix A.2.–West Fork Slate Creek chlorophylls a, b, and c densities, 2011–2024.

	07/29/11			07/25/12		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	2.52	0.00	0.19	1.15	0.00	0.04
	4.70	0.00	0.43	0.41	0.00	0.08
	2.78	0.00	0.26	0.53	0.00	0.02
	3.35	0.00	0.04	0.64	0.00	0.16
	4.27	0.00	0.25	3.62	0.00	0.24
	4.91	0.00	0.42	0.85	0.00	0.14
	3.95	0.00	0.27	0.96	0.01	0.07
	3.10	0.00	0.25	0.41	0.00	0.08
	4.38	0.00	0.39	0.60	0.00	0.12
	5.23	0.00	0.20	0.96	0.00	0.06
mean	3.92	0.00	0.27	1.01	0.00	0.10
maximum	5.23	0.00	0.43	3.62	0.01	0.24
minimum	2.52	0.00	0.04	0.41	0.00	0.02
	07/31/13			07/30/14		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	4.70	0.00	0.74	0.32	0.00	0.01
	1.39	0.00	0.16	0.19	0.00	0.00
	13.14	0.00	2.19	0.75	0.00	0.05
	4.38	0.00	0.47	0.88	0.00	0.00
	1.28	0.00	0.11	1.60	0.00	0.19
	3.10	0.00	0.50	0.23	0.00	0.03
	3.74	0.00	0.53	0.41	0.00	0.00
	2.03	0.00	0.33	0.33	0.00	0.02
	5.02	0.00	0.67	1.18	0.00	0.13
	3.40	0.00	0.36	1.82	0.00	0.15
mean	4.22	0.00	0.61	0.77	0.00	0.06
maximum	13.14	0.00	2.19	1.82	0.00	0.19
minimum	1.28	0.00	0.11	0.19	0.00	0.00
	07/28/15			07/26/16		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.34	0.00	0.21	7.48	0.00	1.16
	0.92	0.00	0.01	4.70	0.00	0.71
	0.77	0.02	0.03	3.22	0.00	0.25
	0.54	0.05	0.00	5.34	0.00	0.61
	0.19	ND	ND	2.67	0.00	0.34
	1.64	0.00	0.04	3.31	0.00	0.45
	2.35	0.00	0.21	4.27	0.00	0.44
	0.53	0.12	0.00	0.92	0.00	0.01
	0.56	0.00	0.06	10.89	0.00	1.64
	0.32	0.05	0.00	6.51	0.00	0.95
mean	0.92	0.03	0.06	4.93	0.00	0.66
maximum	2.35	0.12	0.21	10.89	0.00	1.64
minimum	0.19	0.00	0.00	0.92	0.00	0.01

- continued -

Appendix A.2.–Page 2 of 3.

	07/24/17			07/25/18		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	5.13	0.00	0.60	1.17	0.00	0.22
	5.13	0.00	0.96	4.17	0.00	0.86
	1.82	0.00	0.19	2.35	0.00	0.32
	3.95	0.00	0.83	5.02	0.00	0.93
	5.87	0.00	1.22	5.55	0.00	1.22
	8.22	0.00	1.38	4.91	0.00	1.12
	8.22	0.00	1.58	3.10	0.00	0.53
	3.74	0.00	0.53	1.71	0.00	0.24
	2.78	0.00	0.33	4.38	0.00	0.75
	4.70	0.00	0.92	6.09	0.00	1.16
mean	4.96	0.00	0.85	3.85	0.00	0.74
maximum	8.22	0.00	1.58	6.09	0.00	1.22
minimum	1.82	0.00	0.19	1.17	0.00	0.22
	08/01/19			07/29/20		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.10	ND	ND	1.84	0.00	0.24
	4.17	0.00	0.49	1.65	0.00	0.27
	6.15	0.00	0.88	1.65	0.00	0.27
	1.28	0.00	0.14	ND	ND	ND
	3.42	0.00	0.27	1.42	0.00	0.17
	7.38	0.00	1.17	0.50	0.00	0.13
	4.04	0.00	0.34	0.28	0.00	0.03
	0.73	0.00	0.16	0.78	0.00	0.06
	2.14	0.00	0.19	0.96	0.00	0.10
	0.10	ND	ND	0.60	0.00	0.12
mean	2.95	0.00	0.46	1.08	0.00	0.15
maximum	7.38	0.00	1.17	1.84	0.00	0.27
minimum	0.10	0.00	0.14	0.28	0.00	0.03
	07/29/21			07/25/22		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	15.38	0.00	3.12	4.22	0.00	0.48
	15.27	0.00	2.99	3.62	0.00	0.46
	12.07	0.00	2.19	5.46	0.00	0.61
	13.95	0.00	2.38	3.53	0.00	0.41
	17.71	0.00	2.99	2.29	0.00	0.18
	10.93	0.00	2.03	1.6	0.00	0.17
	19.86	0.00	3.39	5.79	0.00	0.73
	15.56	0.00	2.49	2.89	0.00	0.3
	19.70	0.00	3.25	0.96	0.01	0.07
	16.13	0.00	2.76	5.41	0.00	0.81
mean	15.66	0.00	2.76	3.58	0.00	0.42
maximum	19.86	0.00	3.39	5.79	0.01	0.81
minimum	10.93	0.00	2.03	0.96	0.00	0.07

- continued -

	07/26/23			07/23/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*	Chl-*a*	Chl-*b*	Chl-*c*
	22.77	0.00	3.29	**0.22**	ND	ND
	13.59	0.00	1.64	1.11	0.00	0.00
	15.04	0.00	2.60	**0.22**	ND	ND
	26.81	0.00	2.88	**0.22**	ND	ND
	16.86	0.00	2.15	**0.22**	ND	ND
	13.49	0.00	2.12	1.30	0.32	0.03
	1.07	0.00	0.29	**0.22**	ND	ND
	29.05	0.00	4.18	0.21	0.08	0.06
	10.70	0.00	1.71	**0.22**	ND	ND
	11.43	0.00	1.67	**0.22**	ND	ND
mean	16.08	0.00	2.25	0.42	0.13	0.03
maximum	29.05	0.00	4.18	1.30	0.32	0.06
minimum	1.07	0.00	0.29	0.21	0.00	0.00

Appendix A.3.–East Fork Slate Creek chlorophylls a, b, and c densities, 2011–2024.

	07/28/11			07/24/12		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	9.51	2.16	0.24	11.53	3.24	0.28
	9.18	0.02	0.20	0.41	0.04	0.04
	1.28	0.03	0.00	0.88	0.00	0.05
	5.13	1.15	0.11	0.50	0.00	0.03
	16.02	0.18	0.44	3.42	0.00	0.11
	8.86	1.94	0.70	0.64	0.08	0.05
	4.70	0.70	0.13	18.58	0.00	0.66
	16.13	5.35	0.28	13.67	2.32	0.57
	4.91	0.49	0.12	0.69	0.00	0.00
	12.71	3.59	0.15	0.43	0.00	0.00
mean	8.84	1.56	0.24	5.08	0.57	0.18
maximum	16.13	5.35	0.70	18.58	3.24	0.66
minimum	1.28	0.02	0.00	0.41	0.00	0.00
	07/30/13			07/30/14		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	8.12	0.00	0.67	0.14	0.00	0.00
	0.24	ND	ND	0.64	0.00	0.07
	1.07	0.03	0.07	**0.05**	ND	ND
	0.32	0.07	0.00	0.75	0.14	0.10
	0.64	0.10	0.00	**0.05**	ND	ND
	5.02	0.16	0.35	0.37	0.00	0.00
	0.43	0.00	0.03	**0.05**	ND	ND
	6.41	0.11	0.50	0.11	0.00	0.00
	0.32	0.00	0.00	0.53	0.00	0.01
	0.24	ND	ND	**0.05**	ND	ND
mean	2.28	0.06	0.20	0.27	0.02	0.03
maximum	8.12	0.16	0.67	0.75	0.14	0.10
minimum	0.24	0.00	0.00	0.05	0.00	0.00
	07/27/15			07/25/16		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.85	0.00	0.12	0.23	0.00	0.03
	0.19	ND	ND	4.91	0.00	0.69
	1.92	0.00	0.09	0.75	0.00	0.05
	0.96	0.00	0.09	1.42	0.00	0.14
	1.60	0.00	0.22	0.85	0.02	0.17
	5.34	0.00	0.55	1.56	0.00	0.12
	2.14	0.00	0.09	0.64	0.00	0.08
	0.37	0.00	0.00	**0.19**	ND	ND
	0.92	0.00	0.11	0.87	0.00	0.02
	1.28	0.00	0.08	0.64	0.00	0.06
mean	1.56	0.00	0.15	1.21	0.00	0.15
maximum	5.34	0.00	0.55	4.91	0.02	0.69
minimum	0.19	0.00	0.00	0.19	0.00	0.02

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	07/25/17			07/24/18		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.56	0.00	0.00	0.64	0.00	0.00
	0.51	0.00	0.00	2.14	0.00	0.12
	0.27	0.03	0.00	1.39	0.00	0.00
	0.41	0.00	0.08	0.75	0.00	0.02
	0.96	0.00	0.00	4.91	0.00	0.92
	0.85	0.00	0.15	0.69	0.00	0.00
	0.32	0.00	0.08	0.88	0.00	0.05
	1.74	0.00	0.16	1.61	0.00	0.11
	0.32	0.00	0.08	2.71	0.00	0.36
	0.46	0.00	0.00	0.96	0.00	0.00
mean	0.64	0.00	0.06	1.67	0.00	0.16
maximum	1.74	0.03	0.16	4.91	0.00	0.92
minimum	0.27	0.00	0.00	0.64	0.00	0.00

	08/01/19			07/30/20		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.75	0.00	0.02	1.60	0.07	0.00
	1.92	0.00	0.33	1.84	0.00	0.05
	5.07	0.00	0.31	4.81	0.00	0.80
	1.60	0.00	0.19	0.92	0.00	0.04
	0.63	0.07	0.15	**0.25**	ND	ND
	9.51	0.00	1.15	1.28	0.00	0.19
	0.32	0.00	0.08	0.50	0.00	0.00
	0.85	0.01	0.07	0.51	0.00	0.00
	11.17	0.00	0.80	0.60	0.00	0.02
	3.30	0.00	0.34	1.60	0.05	0.11
mean	3.51	0.01	0.34	1.39	0.01	0.13
maximum	11.17	0.07	1.15	4.81	0.07	0.80
minimum	0.32	0.00	0.02	0.25	0.00	0.00

	07/29/21			07/26/22		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.92	0.00	0.25	1.41	0.01	0.21
	0.32	0.06	0.05	1.05	0.00	0.06
	0.43	0.07	0.10	0.75	0.00	0.00
	2.09	0.06	0.35	0.43	0.00	0.07
	0.55	0.00	0.12	3.08	0.32	0.12
	0.29	ND	ND	0.82	0.00	0.12
	0.56	0.00	0.06	1.17	0.00	0.16
	0.85	0.00	0.04	2.99	0.29	0.21
	0.33	0.00	0.02	2.21	0.00	0.03
	0.64	0.00	0.16	0.64	0.00	0.08
mean	0.80	0.02	0.13	1.46	0.06	0.11
maximum	2.09	0.07	0.35	3.08	0.32	0.21
minimum	0.29	0.00	0.02	0.43	0.00	0.00

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	07/27/23			07/22/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*	Chl-*a*	Chl-*b*	Chl-*c*
	1.39	0.00	0.13	1.19	0.00	0.13
	0.75	0.03	0.28	1.92	0.00	0.16
	1.28	0.00	0.18	0.77	0.01	0.13
	1.79	0.00	0.05	2.88	0.00	0.38
	1.71	0.00	0.15	2.03	0.00	0.10
	0.75	0.03	0.08	1.33	0.00	0.08
	3.52	0.74	0.25	1.50	0.03	0.10
	5.66	0.00	0.26	1.28	0.00	0.07
	5.72	0.00	0.84	3.21	0.00	0.19
	2.11	0.00	0.24	5.34	0.00	0.80
mean	2.47	0.08	0.25	2.15	0.00	0.21
maximum	5.72	0.74	0.84	5.34	0.03	0.80
minimum	0.75	0.00	0.05	0.77	0.00	0.07

Appendix A.4.–Upper Slate Creek SP1 chlorophylls a, b, and c densities, 2011–2024.

	07/29/11			07/24/12		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.41	0.00	0.00	2.03	0.00	0.14
	0.32	0.00	0.04	0.96	0.00	0.09
	0.96	0.01	0.07	0.75	0.00	0.00
	0.11	0.00	0.00	0.50	0.00	0.03
	2.67	0.00	0.26	2.03	0.00	0.14
	0.28	0.00	0.00	1.07	0.00	0.14
	0.60	0.00	0.12	0.55	0.00	0.02
	1.14	0.00	0.01	1.71	0.00	0.06
	0.53	0.00	0.00	2.14	0.00	0.12
	0.60	0.00	0.02	0.83	0.00	0.00
mean	0.76	0.00	0.05	1.26	0.00	0.07
maximum	2.67	0.01	0.26	2.14	0.00	0.14
minimum	0.11	0.00	0.00	0.50	0.00	0.00
	07/30/13			07/30/14		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.82	0.00	0.27	0.92	0.00	0.11
	0.85	0.01	0.07	1.20	0.00	0.07
	2.94	0.00	0.13	1.52	0.00	0.06
	1.39	0.00	0.12	1.82	0.00	0.15
	2.99	0.00	0.11	0.85	0.00	0.00
	4.59	0.00	0.20	0.64	0.00	0.01
	0.85	0.00	0.01	1.18	0.00	0.07
	2.03	0.00	0.20	0.96	0.00	0.00
	0.85	0.00	0.00	0.64	0.00	0.01
	2.94	0.00	0.20	1.17	0.00	0.12
mean	2.13	0.00	0.13	1.09	0.00	0.06
maximum	4.59	0.01	0.27	1.82	0.00	0.15
minimum	0.85	0.00	0.00	0.64	0.00	0.00
	07/27/15			07/25/16		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.37	0.00	0.08	1.15	0.00	0.07
	0.64	0.00	0.08	8.86	0.00	1.12
	0.64	0.00	0.07	1.52	0.00	0.06
	0.51	0.00	0.06	5.34	0.00	0.93
	0.43	0.00	0.08	2.85	0.00	0.14
	0.55	0.00	0.28	1.01	0.00	0.09
	0.64	0.00	0.02	4.81	0.00	0.40
	0.64	0.00	0.08	2.40	0.16	0.21
	0.69	0.00	0.00	4.49	0.00	0.36
	1.17	0.00	0.13	6.19	0.00	0.79
mean	0.63	0.00	0.09	3.86	0.02	0.42
maximum	1.17	0.00	0.28	8.86	0.16	1.12
minimum	0.37	0.00	0.00	1.01	0.00	0.06

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	07/24/17			07/25/18		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.43	0.00	0.00	3.95	0.00	0.67
	1.06	0.00	0.00	3.31	0.00	0.73
	0.64	0.00	0.00	1.82	0.00	0.13
	0.50	0.00	0.03	2.88	0.00	0.37
	0.96	0.00	0.00	2.24	0.00	0.14
	1.17	0.00	0.03	1.17	0.00	0.03
	1.07	0.00	0.14	3.52	0.00	0.55
	0.64	0.00	0.00	2.56	0.00	0.35
	0.32	0.01	0.00	1.60	0.00	0.41
	1.47	0.00	0.23	2.67	0.00	0.18
mean	0.83	0.00	0.04	2.57	0.00	0.36
maximum	1.47	0.01	0.23	3.95	0.00	0.73
minimum	0.32	0.00	0.00	1.17	0.00	0.03

	08/01/19			07/30/20		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	24.88	0.00	1.78	2.46	0.00	0.05
	23.39	0.00	2.08	1.19	0.00	0.04
	2.78	0.00	0.16	1.52	0.00	0.00
	3.11	0.00	0.21	0.43	0.00	0.00
	2.43	0.00	0.23	0.97	0.00	0.03
	1.70	0.00	0.17	1.80	0.00	0.08
	7.67	0.00	0.57	0.96	0.00	0.10
	0.87	0.00	0.11	1.34	0.00	0.02
	3.71	0.00	0.29	0.11	0.00	0.18
	4.17	0.00	0.36	0.51	0.00	0.06
mean	7.47	0.00	0.60	1.13	0.00	0.06
maximum	24.88	0.00	2.08	2.46	0.00	0.18
minimum	0.87	0.00	0.11	0.11	0.00	0.00

	07/28/21			07/26/22		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	3.95	0.00	0.50	0.96	0.00	0.00
	5.41	0.00	0.49	2.14	0.00	0.32
	2.67	0.00	0.14	3.16	0.00	0.20
	0.53	0.01	0.18	0.41	0.00	0.00
	ND	ND	ND	1.79	0.00	0.05
	4.04	0.00	0.57	2.94	0.00	0.23
	0.29	ND	ND	0.83	0.00	0.05
	3.44	0.00	0.72	0.51	0.00	0.06
	1.60	0.00	0.25	0.43	0.00	0.00
	4.06	0.00	0.83	1.50	0.00	0.08
mean	2.89	0.00	0.46	1.47	0.00	0.10
maximum	5.41	0.01	0.83	3.16	0.00	0.32
minimum	0.29	0.00	0.14	0.41	0.00	0.00

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	07/26/23			07/23/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*	Chl-*a*	Chl-*b*	Chl-*c*
	2.83	0.00	0.34	0.83	0.00	0.05
	2.39	0.00	0.17	1.10	0.00	0.15
	5.60	0.00	0.30	0.83	0.00	0.05
	6.88	0.00	0.26	0.37	0.00	0.01
	1.84	0.00	0.05	1.14	0.00	0.01
	4.91	0.00	0.36	0.54	0.05	0.00
	1.29	0.00	0.02	0.55	0.00	0.12
	2.53	0.00	0.25	0.87	0.00	0.02
	6.89	0.00	0.68	0.96	0.00	0.00
	15.91	0.00	2.29	**0.22**	ND	ND
mean	5.11	0.00	0.47	0.74	0.01	0.05
maximum	15.91	0.00	2.29	1.14	0.05	0.15
minimum	1.29	0.00	0.02	0.22	0.00	0.00

Appendix A.5.–Upper Slate Creek SP2 chlorophylls a, b, and c densities, 2024.

	07/23/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*
	1.92	0.00	0.17
	1.17	0.00	0.03
	0.88	0.00	0.05
	1.37	0.00	0.05
	2.67	0.00	0.33
	3.52	0.00	0.19
	2.21	0.00	0.06
	2.06	0.00	0.15
	0.74	0.00	0.00
	0.85	0.00	0.01
mean	1.74	0.00	0.10
maximum	3.52	0.00	0.33
minimum	0.74	0.00	0.00

Appendix A.6.–Lower Sherman Creek SP1 chlorophylls a, b, and c densities, 2011–2024.

	07/28/11			07/26/12		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.28	0.00	0.05	1.07	0.00	0.14
	5.34	0.00	0.36	2.88	0.87	0.16
	5.98	0.00	0.54	0.41	0.04	0.04
	3.84	0.10	0.48	2.67	1.27	0.00
	15.59	3.98	0.17	0.60	0.00	0.12
	11.11	2.64	0.28	1.07	0.00	0.11
	19.33	0.00	1.65	3.63	1.56	0.03
	7.26	0.00	0.74	9.61	4.12	0.08
	1.92	0.04	0.19	2.99	1.43	0.02
	4.38	0.17	0.44	0.43	0.00	0.06
mean	7.60	0.69	0.49	2.54	0.93	0.08
maximum	19.33	3.98	1.65	9.61	4.12	0.16
minimum	1.28	0.00	0.05	0.41	0.00	0.00
	07/29/13			07/28/14		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	4.06	0.00	0.38	2.46	0.00	0.30
	5.55	0.00	0.73	0.74	0.00	0.10
	0.24	ND	ND	0.19	0.00	0.00
	4.67	0.00	0.55	0.92	0.00	0.14
	7.69	0.00	0.89	0.83	0.00	0.15
	7.37	0.00	0.62	2.99	0.00	0.47
	0.24	ND	ND	1.39	0.00	0.17
	2.67	0.00	0.35	2.46	0.00	0.25
	0.75	0.03	0.08	0.45	0.01	0.04
	ND	ND	ND	0.96	0.00	0.16
mean	3.69	0.00	0.51	1.34	0.00	0.18
maximum	7.69	0.03	0.89	2.99	0.01	0.47
minimum	0.24	0.00	0.08	0.19	0.00	0.00
	07/27/15			07/25/16		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.28	0.00	0.03	3.31	0.52	0.31
	0.19	ND	ND	4.27	0.00	0.76
	0.92	0.00	0.11	1.39	0.00	0.16
	0.64	0.00	0.01	2.14	0.00	0.37
	2.67	0.00	0.31	2.28	0.00	0.32
	0.79	0.00	0.00	13.24	6.47	0.31
	2.78	0.00	0.32	2.78	0.13	0.23
	0.19	ND	ND	2.24	0.00	0.31
	4.17	0.00	0.49	3.31	0.12	0.35
	1.01	0.00	0.09	2.03	0.20	0.17
mean	1.36	0.00	0.17	3.70	0.74	0.33
maximum	4.17	0.00	0.49	13.24	6.47	0.76
minimum	0.19	0.00	0.00	1.39	0.00	0.16

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	07/25/17			07/24/18		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	5.02	0.00	0.68	2.88	0.00	0.36
	5.13	0.00	0.93	3.95	0.00	0.50
	2.35	0.00	0.28	2.14	0.00	0.38
	2.99	0.00	0.40	2.43	0.00	0.23
	4.49	0.00	0.64	2.56	0.00	0.36
	3.84	0.00	0.55	2.06	0.00	0.15
	6.30	0.00	1.05	1.82	0.00	0.20
	4.06	0.00	0.63	4.58	0.00	0.63
	1.10	0.00	0.05	2.24	0.00	0.35
	3.31	0.00	0.39	1.71	0.00	0.15
mean	3.86	0.00	0.56	2.64	0.00	0.33
maximum	6.30	0.00	1.05	4.58	0.00	0.63
minimum	1.10	0.00	0.05	1.71	0.00	0.15
	08/02/19			07/29/20		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	ND	ND	ND	17.52	0.00	1.73
	0.10	ND	ND	8.01	0.00	0.80
	0.43	0.07	0.10	2.66	0.00	0.07
	0.50	0.00	0.13	5.55	0.35	0.29
	0.10	ND	ND	13.67	4.03	0.31
	5.66	0.47	0.45	**0.25**	ND	ND
	0.10	ND	ND	1.15	0.00	0.04
	5.02	0.00	0.66	6.51	0.00	0.48
	12.50	0.00	1.56	1.89	0.00	0.14
	0.21	0.00	0.03	5.13	0.00	0.41
mean	2.74	0.09	0.49	6.23	0.49	0.47
maximum	12.50	0.47	1.56	17.52	4.03	1.73
minimum	0.10	0.00	0.03	0.25	0.00	0.04
	07/28/21			07/26/22		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	7.47	0.00	1.03	3.16	0.00	0.27
	4.44	0.00	0.78	9.32	0.00	0.94
	6.83	0.00	1.05	1.42	0.00	0.17
	5.66	0.00	0.96	1.65	0.00	0.17
	7.29	0.00	1.02	0.98	0.18	0.46
	14.20	0.00	2.48	1.55	0.00	0.09
	5.23	0.00	0.77	5.45	0.00	0.68
	2.62	0.00	0.40	6.51	0.00	0.86
	5.34	0.00	0.95	8.28	0.00	0.89
	15.05	0.00	2.04	2.75	0.00	0.32
mean	7.41	0.00	1.15	4.11	0.02	0.49
maximum	15.05	0.00	2.48	9.32	0.18	0.94
minimum	2.62	0.00	0.40	0.98	0.00	0.09

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	07/27/23			07/22/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*	Chl-*a*	Chl-*b*	Chl-*c*
	5.64	0.00	0.75	1.92	0.00	0.35
	6.25	0.00	0.70	2.99	0.00	0.27
	5.66	0.00	0.41	3.95	0.00	0.41
	9.10	0.00	0.84	7.58	0.00	1.10
	7.69	0.00	0.83	1.17	0.28	0.07
	6.41	0.00	0.66	0.60	0.00	0.12
	4.49	0.00	0.48	**0.22**	ND	ND
	3.72	0.00	0.28	0.64	0.00	0.07
	0.96	0.00	0.09	2.99	0.02	0.20
	1.42	0.00	0.17	2.88	0.03	0.10
mean	5.13	0.00	0.52	2.49	0.04	0.30
maximum	9.10	0.00	0.84	7.58	0.28	1.10
minimum	0.96	0.00	0.09	0.22	0.00	0.07

Appendix A.7.–Lower Sherman Creek SP2 chlorophylls a, b, and c densities, 2011–2024.

	07/28/11			07/26/12		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	3.10	0.00	0.26	1.05	0.04	0.12
	6.30	0.19	0.62	0.64	0.00	0.11
	4.59	0.00	0.38	0.73	0.00	0.07
	0.32	0.00	0.00	0.50	0.07	0.10
	13.88	0.00	0.54	**0.34**	ND	ND
	7.37	0.00	0.46	0.51	0.00	0.06
	1.50	0.00	0.09	0.96	0.00	0.16
	14.31	0.00	0.59	0.37	0.00	0.00
	0.85	0.00	0.01	1.28	0.00	0.09
	3.84	0.00	0.25	**0.34**	ND	ND
mean	5.61	0.02	0.32	0.67	0.01	0.09
maximum	14.31	0.19	0.62	1.28	0.07	0.16
minimum	0.32	0.00	0.00	0.34	0.00	0.00
	07/29/13			07/28/14		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.07	0.00	0.14	0.74	0.00	0.10
	3.84	0.00	0.34	1.38	0.00	0.18
	0.96	0.00	0.15	2.83	0.00	0.15
	4.81	0.00	0.49	3.31	0.00	0.31
	5.77	0.00	0.78	0.75	0.00	0.06
	0.32	0.02	0.10	0.85	0.03	0.08
	4.70	0.00	0.44	0.85	0.00	0.01
	3.52	0.00	0.35	1.39	0.00	0.16
	0.53	0.00	0.02	0.43	0.01	0.04
	3.20	0.00	0.43	0.69	0.00	0.07
mean	2.87	0.00	0.32	1.32	0.00	0.12
maximum	5.77	0.02	0.78	3.31	0.03	0.31
minimum	0.32	0.00	0.02	0.43	0.00	0.01
	07/27/15			07/25/16		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.69	0.00	0.00	1.50	0.00	0.17
	0.96	0.00	0.00	2.03	0.00	0.30
	0.85	0.00	0.11	0.43	0.00	0.13
	1.28	0.00	0.16	2.98	0.00	0.38
	2.14	0.00	0.24	0.96	0.00	0.09
	3.63	0.65	0.43	1.28	0.04	0.26
	0.96	0.07	0.03	1.71	0.00	0.22
	2.14	0.78	1.30	1.92	0.35	0.16
	1.07	0.00	0.14	0.41	0.00	0.08
	2.46	0.00	0.24	0.96	0.00	0.06
mean	1.62	0.15	0.27	1.42	0.04	0.19
maximum	3.63	0.78	1.30	2.98	0.35	0.38
minimum	0.69	0.00	0.00	0.41	0.00	0.06

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	07/25/17			07/24/18		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.75	0.00	0.05	0.96	0.00	0.09
	0.85	0.01	0.07	1.38	0.00	0.21
	0.88	0.00	0.05	1.60	0.00	0.17
	0.69	0.00	0.07	0.53	0.00	0.02
	3.70	0.00	0.46	1.50	0.00	0.26
	0.69	0.00	0.07	1.60	0.00	0.23
	0.64	0.00	0.07	0.64	0.00	0.11
	1.82	0.00	0.20	4.17	0.00	0.58
	0.92	0.00	0.11	0.96	0.00	0.09
	0.55	0.00	0.02	1.60	0.00	0.15
mean	1.15	0.00	0.12	1.49	0.00	0.19
maximum	3.70	0.01	0.46	4.17	0.00	0.58
minimum	0.55	0.00	0.02	0.53	0.00	0.02
	08/02/19			07/29/20		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.43	0.00	0.03	5.42	0.04	0.33
	1.60	0.00	0.23	1.65	0.00	0.20
	6.84	0.00	1.07	2.78	0.29	0.20
	1.11	0.00	0.08	1.93	0.00	0.20
	1.33	0.00	0.18	4.38	0.48	0.25
	0.18	0.00	0.00	6.84	0.39	0.70
	5.02	0.00	0.63	5.18	0.00	0.45
	0.85	0.00	0.13	0.75	0.00	0.00
	2.14	0.00	0.31	30.44	5.80	1.15
	1.71	0.00	0.21	16.66	1.69	1.44
mean	2.12	0.00	0.29	7.60	0.87	0.49
maximum	6.84	0.00	1.07	30.44	5.80	1.44
minimum	0.18	0.00	0.00	0.75	0.00	0.00
	07/28/21			07/26/22		
mg/m²	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	4.50	0.00	0.71	0.82	0.00	0.12
	3.76	0.00	0.51	3.81	0.00	0.21
	1.60	0.00	0.14	4.38	0.00	0.29
	12.02	0.00	1.66	1.75	0.00	0.19
	4.17	0.00	0.50	0.85	0.03	0.08
	3.17	0.00	0.43	2.46	0.00	0.36
	5.73	0.00	0.77	5.34	0.00	0.39
	6.55	0.00	0.83	0.74	0.00	0.10
	5.34	0.00	0.72	3.63	0.00	0.50
	8.53	0.00	0.95	1.60	0.00	0.17
mean	5.54	0.00	0.72	2.54	0.00	0.24
maximum	12.02	0.00	1.66	5.34	0.03	0.50
minimum	1.60	0.00	0.14	0.74	0.00	0.08

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Appendix A.7.–Page 3 of 3.

	07/27/23			07/22/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*	Chl-*a*	Chl-*b*	Chl-*c*
	4.54	0.00	0.50	1.17	0.00	0.13
	0.85	0.00	0.04	0.27	0.03	0.00
	2.35	0.00	0.32	0.85	0.00	0.11
	5.77	0.00	0.61	3.42	0.00	0.49
	2.12	0.00	0.08	1.97	0.00	0.10
	2.88	0.00	0.28	2.98	0.00	0.38
	2.78	0.00	0.32	1.33	0.00	0.08
	0.21	0.05	0.00	5.23	0.00	0.76
	2.44	0.00	0.16	2.99	0.00	0.49
	2.62	0.00	0.30	1.71	0.00	0.05
mean	2.66	0.01	0.26	2.19	0.00	0.26
maximum	5.77	0.05	0.61	5.23	0.03	0.76
minimum	0.21	0.00	0.00	0.27	0.00	0.00

Appendix A.8.–Upper Sherman Creek chlorophylls a, b, and c densities, 2024.

	07/22/24		
mg/m²	Chl-*a*	Chl-*b*	Chl-*c*
	5.54	0.00	0.83
	0.85	0.00	0.14
	13.19	0.00	1.77
	5.66	0.00	0.92
	0.85	0.00	0.26
	1.71	0.00	0.15
	2.10	0.00	0.31
	4.17	0.00	0.53
	0.33	0.00	0.02
	3.42	0.00	0.46
mean	3.78	0.00	0.54
maximum	13.19	0.00	1.77
minimum	0.33	0.00	0.02

APPENDIX B: BENTHIC MACROINVERTEBRATE DATA

Appendix B.1.–Lower Slate Creek BMI data summary, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	29	32	27	32	26	24	27	17	18	24	17	15	20	26
Total EPT Taxa	13	17	16	17	13	11	13	9	9	11	8	10	13	15
Total BMI Counted	1,148	1,760	1,200	2,308	1,901	1,894	730	269	521	674	237	452	533	800
Ephemeroptera	85	387	400	73	196	225	219	84	214	77	103	157	303	285
Plecoptera	70	274	203	352	258	61	145	37	85	44	14	17	112	68
Trichoptera	2	8	6	17	6	3	3	0	0	4	0	0	0	2
Aquatic Diptera	862	975	503	1,711	1,268	1,038	308	32	208	431	90	248	112	201
Other	129	116	88	155	173	567	55	116	14	118	30	30	6	244
% Ephemeroptera	7.4	22	33	3.2	10	12	30	31	41	11	43	34.7	56.8	35.6
% Plecoptera	6.1	16	17	15	14	3	20	14	16	7	6	3.8	21	8.5
% Trichoptera	0.2	0.5	0.5	0.7	0.3	0.2	0.4	0	0	0.6	0	0	0	0.2
% Aquatic Diptera	75	55	42	74	67	55	42	12	40	64	38	54.9	21	25.1
% Other	11	7	7.3	6.7	9	30	8	43	3	18	13	6.6	1.1	30.5
% EPT	14	38	51	19	24	15	50	45	57	19	49	38	78	44
% Chironomidae	72	53	35	68	64	51	36	11	29	57	31	53	19	23
Shannon Diversity Score	0.51	0.69	0.85	0.64	0.7	0.65	0.81	0.81	0.83	0.59	0.77	0.59	0.8	0.8
Evenness Score	0.48	0.58	0.7	0.52	0.58	0.57	0.73	0.84	0.81	0.56	0.82	0.65	0.77	0.71
Total Sample Area (m^2)	0.56	0.56	0.47	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Mean BMI/m^2	2,057	3,154	2,581	4,136	3,407	3,394	1,308	482	934	1,208	425	810	955	1,434
±1 SD	1,046	1,849	551	3,592	2,458	1,667	436	461	267	629	167	358	320	548
Terrestrial Invertebrates	0	4	0	1	3	88	1	0	7	1	0	3	2	15
Juvenile Fish	1	0	0	1	0	0	0	1	0	0	0	1	0	0

Appendix B.2.–West Fork Slate Creek BMI data summary, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	21	31	28	29	28	25	21	18	16	18	17	22	21	22
Total EPT Taxa	11	21	18	17	16	15	13	12	11	12	14	15	16	14
Total BMI Counted	280	1,015	1,365	543	1,470	820	494	183	725	758	401	802	1,107	1,012
Ephemeroptera	181	634	991	223	956	564	311	115	560	465	303	604	632	584
Plecoptera	41	166	233	150	243	55	94	37	97	124	60	82	387	190
Trichoptera	3	11	10	15	10	10	2	2	0	6	8	2	4	3
Aquatic Diptera	35	175	118	136	215	151	77	22	67	160	25	107	73	212
Other	20	29	13	19	46	40	10	7	1	3	5	7	11	23
% Ephemeroptera	64.6	62.5	72.6	41.1	65	68.8	63	62.8	77.2	61.3	75.6	75.3	57.1	57.7
% Plecoptera	14.6	16.4	17.1	27.6	16.5	6.7	19	20.2	13.4	16.4	15	10.2	35	18.8
% Trichoptera	1.1	1.1	0.7	2.8	0.7	1.2	0.4	1.1	0	0.8	2	0.2	0.4	0.3
% Aquatic Diptera	12.5	17.2	8.6	25	14.6	18.4	15.6	12	9.2	21.1	6.2	13.3	6.6	20.9
% Other	7.1	2.9	1	3.5	3.1	4.9	2	3.8	0.1	0.4	1.2	0.9	1	2.3
% EPT	80	80	90	71	82	77	82	84	91	78	93	86	92	77
% Chironomidae	10	15	7	22	12	18	14	10	7	20	6	11	5	20
Shannon Diversity Score	0.63	0.84	0.73	0.91	0.82	0.72	0.78	0.72	0.64	0.75	0.76	0.62	0.82	0.76
Evenness Score	0.78	0.71	0.61	0.79	0.71	0.69	0.78	0.83	0.64	0.74	0.75	0.57	0.72	0.68
Total Sample Area (m^2)	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Mean BMI/m^2	502	1,819	2,446	973	2,634	1,470	885	328	1,299	1,358	719	1,437	1,984	1,814
±1 SD	410	1,009	777	482	1,400	703	592	140	501	734	452	427	888	448
Terrestrial Invertebrates	2	0	0	0	1	7	0	2	1	2	2	5	1	1
Juvenile Fish	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B.3.–East Fork Slate Creek BMI data summary, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	27	33	33	24	28	21	27	26	25	26	23	25	29	34
Total EPT Taxa	15	17	17	9	16	11	13	15	15	14	14	13	15	17
Total BMI Counted	2,616	2,585	5,249	1,143	1,792	1,117	3,785	2,002	2,157	3,067	1,918	1,726	3,713	4,832
Ephemeroptera	387	490	19	9	274	227	310	99	306	314	118	160	304	843
Plecoptera	70	73	45	10	36	42	58	33	37	46	54	7	94	93
Trichoptera	28	23	66	3	14	40	33	21	38	33	18	56	64	96
Aquatic Diptera	507	547	598	454	633	398	1,281	732	535	835	1,034	808	1,865	1,233
Other	1,624	1,451	4,521	667	835	410	2,103	1,117	1,241	1,839	694	695	1,386	2,567
% Ephemeroptera	14.8	19	0.4	0.8	15.3	20.3	8.2	4.9	14.2	10.2	6.2	9.3	8.2	17.4
% Plecoptera	2.7	2.8	0.9	0.9	2	3.8	1.5	1.6	1.7	1.5	2.8	0.4	2.5	1.9
% Trichoptera	1.1	0.9	1.3	0.3	0.8	3.6	0.9	1	1.8	1.1	0.9	3.2	1.7	2
% Aquatic Diptera	19.4	21.2	11.4	39.7	35.3	35.6	33.8	36.6	24.8	27.2	53.9	46.8	50.2	25.5
% Other	62.1	56.2	86.1	58.4	46.6	36.7	55.6	55.8	57.5	60	36.2	40.3	37.3	53.1
% EPT	19	23	2	2	18	28	11	8	18	13	10	13	12	21
% Chironomidae	17	15	10	35	28	26	21	31	20	25	45	43	47	24
Shannon Diversity Score	0.64	0.78	0.57	0.7	0.92	0.92	0.62	0.54	0.62	0.56	0.59	0.61	0.6	0.81
Evenness Score	0.54	0.61	0.47	0.63	0.72	0.78	0.51	0.46	0.53	0.46	0.52	0.53	0.47	0.61
Total Sample Area (m^2)	0.56	0.56	0.56	0.56	0.47	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Mean BMI/m^2	4,688	4,633	9,407	2,048	3,854	2,002	6,783	3,588	3,866	5,496	3,437	3,093	6,654	8,659
±1 SD	1,081	1,325	3,830	952	837	469	2,365	1,984	1,083	1,862	1,256	1,131	1,939	3,218
Terrestrial Invertebrates	3	1	0	0	5	11	0	0	2	0	0	1	0	26
Juvenile Fish	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B.4.–Upper Slate Creek SP1 BMI data summary, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	33	39	34	36	31	28	30	31	24	25	28	29	27	36
Total EPT Taxa	18	21	20	20	19	15	19	18	18	15	18	20	18	21
Total BMI Counted	1,408	1,259	1,607	1,744	2,107	1,338	1,132	864	912	543	786	695	1,346	2,001
Ephemeroptera	368	454	492	622	622	554	460	383	513	222	426	315	695	1,234
Plecoptera	401	349	604	429	758	252	172	175	213	116	160	140	401	376
Trichoptera	116	48	55	44	44	104	62	33	35	50	47	25	64	30
Aquatic Diptera	248	273	338	518	517	169	406	258	137	144	133	202	179	264
Other	275	135	118	131	166	259	32	15	14	11	20	13	7	97
% Ephemeroptera	26.1	36.1	30.6	36	29.5	41.4	40.6	44.3	56.3	40.9	54.2	45.3	51.6	61.7
% Plecoptera	28.5	27.7	37.6	25	36	18.8	15.2	20.3	23.4	21.4	20.4	20.1	29.8	18.8
% Trichoptera	8.2	3.8	3.4	2.5	2.1	7.8	5.5	3.8	3.8	9.2	6	3.6	4.8	1.5
% Aquatic Diptera	17.6	21.7	21	30	24.5	12.6	35.9	29.9	15	26.5	16.9	29.1	13.3	13.2
% Other	19.5	10.7	7.3	8	7.9	19.4	2.8	1.7	1.5	2	2.5	1.9	0.5	4.8
% EPT	63	68	72	63	68	68	61	68	83	71	81	69	86	82
% Chironomidae	15	20	19	28	22	11	34	28	11	22	15	26	12	11
Shannon Diversity Score	0.97	1.04	1.02	1.03	0.98	1.06	0.96	0.92	0.99	0.92	0.97	0.98	0.94	0.96
Evenness Score	0.76	0.79	0.78	0.76	0.74	0.82	0.73	0.75	0.8	0.78	0.77	0.8	0.74	0.73
Total Sample Area (m^2)	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Mean BMI/m^2	2,523	2,256	2,880	3,125	3,776	2,398	2,029	1,548	1,634	973	1,409	1,246	2,412	3,586
±1 SD	1,173	1,321	1,049	660	1,174	520	1,143	574	170	295	494	667	574	939
Terrestrial Invertebrates	1	0	0	1	3	6	3	1	0	4	2	2	1	4
Juvenile Fish	0	0	0	0	0	0	0	0	2	0	0	0	0	0

Appendix B.5.–Upper Slate Creek SP2 BMI data summary, 2024.

	2024
Total BMI Taxa	30
Total EPT Taxa	19
Total BMI Counted	2,572
Ephemeroptera	1,533
Plecoptera	474
Trichoptera	87
Aquatic Diptera	363
Other	115
% Ephemeroptera	59.6
% Plecoptera	18.4
% Trichoptera	3.4
% Aquatic Diptera	14.1
% Other	4.5
% EPT	81
% Chironomidae	13
Shannon Diversity Score	0.91
Evenness Score	0.7
Total Sample Area (m^2)	0.56
Mean BMI/m^2	4,609
±1 SD	1,749
Terrestrial Invertebrates	4
Juvenile Fish	0

Appendix B.6.–Upper Johnson Creek SP1 BMI data summary, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	24	28	34	32	28	32	33	31	25	31	29	20	31	32
Total EPT Taxa	14	14	24	21	17	21	19	20	18	19	18	13	23	20
Total BMI Counted	2,084	2,214	2,938	1,483	1,556	2,054	1,619	1,672	1,880	1,056	1,470	1,380	3,954	1,927
Ephemeroptera	962	1,139	1,680	740	917	1,160	651	935	1,195	688	1,101	1,093	2,833	1,315
Plecoptera	114	163	147	217	58	97	113	97	47	60	33	28	495	82
Trichoptera	59	118	95	68	137	198	54	80	79	53	41	13	110	88
Aquatic Diptera	619	586	799	407	366	476	773	542	543	244	281	235	511	413
Other	330	208	217	51	78	123	28	18	16	11	14	11	5	29
% Ephemeroptera	46	51	57	50	59	56	40	56	64	65	75	79.2	71.6	68.2
% Plecoptera	6	7.4	5	15	4	4.7	7	5.8	2.5	5.7	2.2	2	12.5	4.3
% Trichoptera	2.8	5.3	3.2	4.6	8.8	9.6	3.3	4.8	4.2	5	2.8	0.9	2.8	4.6
% Aquatic Diptera	29.7	26.5	27	27	23.5	23.2	47.7	32.4	28.9	23.1	19.1	17	12.9	21.4
% Other	15.8	9.4	7	3.4	5	6	1.7	1.1	0.9	1	1	0.8	0.1	1.5
% EPT	55	64	65	69	71	71	51	67	70	76	80	82	87	77
% Chironomidae	29	26	27	26	22	22	46	31	28	22	18	17	12	20
Shannon Diversity Score	0.76	0.81	0.74	0.74	0.87	0.88	0.68	0.81	0.71	0.77	0.74	0.66	0.82	0.81
Evenness Score	0.66	0.68	0.59	0.59	0.71	0.7	0.55	0.66	0.61	0.66	0.63	0.62	0.64	0.69
Total Sample Area (m^2)	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Mean BMI/m^2	3,735	3,968	5,265	2,658	2,789	3,681	2,901	2,996	3,369	1,892	2,634	2,473	7,086	3,453
±1 SD	1,918	2,305	2,512	2,017	858	1,025	1,056	1,430	1,070	693	1,122	725	2,417	1,370
Terrestrial Invertebrates	1	1	1	4	1	2	6	1	11	2	0	4	2	3
Juvenile Fish	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B.7.–Upper Johnson Creek SP2 BMI summary, 2024.

	2024
Total BMI Taxa	36
Total EPT Taxa	21
Total BMI Counted	3,050
Ephemeroptera	1,963
Plecoptera	345
Trichoptera	62
Aquatic Diptera	621
Other	59
% Ephemeroptera	64.4
% Plecoptera	11.3
% Trichoptera	2
% Aquatic Diptera	20.4
% Other	1.9
% EPT	78
% Chironomidae	18
Shannon Diversity Score	0.86
Evenness Score	0.67
Total Sample Area (m^2)	0.56
Mean BMI/m^2	5,466
±1 SD	3,902
Terrestrial Invertebrates	4
Juvenile Fish	0

Appendix B.8.–Lower Johnson Creek BMI data summary, 2024.

	2024
Total BMI Taxa	22
Total EPT Taxa	10
Total BMI Counted	1,052
Ephemeroptera	752
Plecoptera	113
Trichoptera	2
Aquatic Diptera	110
Other	75
% Ephemeroptera	71.5
% Plecoptera	10.7
% Trichoptera	0.2
% Aquatic Diptera	10.5
% Other	7.1
% EPT	82
% Chironomidae	9
Shannon Diversity Score	0.63
Evenness Score	0.59
Total Sample Area (m^2)	0.56
Mean BMI/m^2	1,885
±1 SD	1,285
Terrestrial Invertebrates	0
Juvenile Fish	0

Appendix B.9.–Lower Sherman Creek SP1 BMI data summary, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	26	31	28	30	26	26	25	26	25	24	20	24	19	22
Total EPT Taxa	15	18	16	13	13	13	13	16	14	14	14	15	15	12
Total BMI Counted	624	1,525	1,002	1,687	921	3,816	563	509	705	710	552	839	1,099	2,064
Ephemeroptera	157	876	499	114	175	101	88	293	404	179	452	581	852	673
Plecoptera	36	103	135	97	67	41	72	48	41	30	25	32	75	64
Trichoptera	7	14	6	18	6	9	16	11	4	3	14	5	8	7
Aquatic Diptera	89	160	131	648	326	273	123	51	228	322	54	196	133	254
Other	335	372	231	810	347	3,392	264	106	28	176	7	25	31	1,066
% Ephemeroptera	25	58	50	7	19	2.6	15.6	57.6	57.3	25.2	81.9	69.2	77.5	32.6
% Plecoptera	6	7	13	6	7	1.1	12.8	9.4	5.8	4.2	4.5	3.8	6.8	3.1
% Trichoptera	1.1	0.9	0.6	1.1	1	0.2	2.8	2.2	0.6	0.4	2.5	0.6	0.7	0.3
% Aquatic Diptera	14	11	13	38	35	7.2	21.8	10	32.3	45.4	9.8	23.4	12.1	12.3
% Other	54	24	23	48	38	88.9	46.9	20.8	4	24.8	1.3	3	2.8	51.6
% EPT	32	66	64	14	27	4	31	69	64	30	89	74	85	36
% Chironomidae	6	8	12	33	33	7	13	7	27	42	9	21	9	11
Shannon Diversity Score	0.76	0.74	0.85	0.71	0.84	0.32	0.81	0.73	0.79	0.64	0.62	0.62	0.62	0.63
Evenness Score	0.71	0.62	0.71	0.57	0.7	0.27	0.69	0.71	0.71	0.61	0.62	0.56	0.55	0.55
Total Sample Area (m^2)	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Mean BMI/m^2	1,118	2,733	1,796	3,023	1,651	6,839	1,009	912	1,263	1,272	989	1,504	1,970	3,699
±1 SD	1,000	1,410	247	936	718	1,398	168	408	345	638	464	462	1,058	1,543
Terrestrial Invertebrates	1	0	14	1	14	21	1	0	2	0	1	4	0	5
Juvenile Fish	10	12	0	8	0	77	0	11	0	2	0	0	0	3

Appendix B.10.–Lower Sherman Creek SP2 BMI data summary, 2011–2024.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	30	36	39	28	23	23	26	21	25	23	26	18	24	29
Total EPT Taxa	17	26	25	16	13	13	14	18	15	16	18	12	16	19
Total BMI Counted	921	1,573	1,889	661	898	1,045	239	543	906	486	402	645	1,927	1,606
Ephemeroptera	548	1,143	1,049	31	163	84	37	427	708	163	288	494	1,485	917
Plecoptera	137	77	299	40	47	32	25	39	35	32	32	24	155	111
Trichoptera	14	26	18	7	13	10	5	13	23	18	13	2	11	17
Aquatic Diptera	143	254	289	354	315	224	88	43	124	242	61	108	211	142
Other	79	75	234	229	360	695	84	21	16	31	8	17	65	419
% Ephemeroptera	60	73	56	4.7	18.2	8	15.5	78.6	78.1	33.5	71.6	76.6	77.1	57.1
% Plecoptera	15	4.9	16	6	5.2	3.1	10.5	7.2	3.9	6.6	8	3.7	8	6.9
% Trichoptera	1.5	1.7	1	1.1	1.4	1	2.1	2.4	2.5	3.7	3.2	0.3	0.6	1.1
% Aquatic Diptera	16	16	15	54	35.1	21.4	36.8	7.9	13.7	49.8	15.2	16.7	10.9	8.8
% Other	9	4.8	12	35	40.1	66.5	35.1	3.9	1.8	6.4	2	2.6	3.4	26.1
% EPT	76	79	72	12	25	12	28	88	85	44	83	81	86	65
% Chironomidae	11	15	14	48	33	20	24	6	11	44	12	15	7	8
Shannon Diversity Score	0.93	0.7	0.84	0.7	0.77	0.53	0.84	0.61	0.64	0.79	0.76	0.54	0.73	0.75
Evenness Score	0.76	0.57	0.65	0.62	0.66	0.49	0.8	0.57	0.6	0.73	0.7	0.53	0.61	0.62
Total Sample Area (m^2)	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Mean BMI/m^2	1,651	2,823	3,385	1,185	1,609	1,873	428	973	1,624	871	720	1,156	3,453	2,878
±1 SD	927	1,174	1,471	769	748	982	219	370	712	410	321	169	1,830	947
Terrestrial Invertebrates	1	2	18	1	10	4	2	1	4	0	0	1	1	0
Juvenile Fish	0	0	14	0	0	6	0	13	0	0	0	12	0	0

Appendix B.11.–Upper Sherman Creek BMI data summary, 2024.

	2024
Total BMI Taxa	32
Total EPT Taxa	20
Total BMI Counted	2,463
Ephemeroptera	1,893
Plecoptera	203
Trichoptera	48
Aquatic Diptera	308
Other	11
% Ephemeroptera	76.9
% Plecoptera	8.2
% Trichoptera	1.9
% Aquatic Diptera	12.5
% Other	0.4
% EPT	87
% Chironomidae	11
Shannon Diversity Score	0.68
Evenness Score	0.55
Total Sample Area (m^2)	0.56
Mean BMI/m^2	4,414
±1 SD	2,388
Terrestrial Invertebrates	3
Juvenile Fish	0

APPENDIX C: ADULT SALMON DATA

Appendix C.1.–Lower Slate, Johnson, and Sherman Creek weekly adult pink salmon counts, 2011–2024.

Site	Statistical Week	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Slate	29	ND	0	0	0	ND	ND	0	ND	ND	ND	ND	ND	ND	ND
	30	0*	0	7	0	12	0	0	0	0	0	0	ND	ND	ND
	31	0	364	66	2	487	0	7	ND	0	1	0	ND	ND	ND
	32	369	1,106	604	14	1,769	1	386	0	0	0	0	3	129	0
	33	763	3,152	864	13	1,783	0	477*	3	200	ND	ND	ND	1,369	0
	34	1,394	2,331	1,199	12	1,543	64	2,818	1	11	4	1,156	5	2,138	6
	35	1,646	318	472	0	850	12	1,340*	ND	532	8	1,055	11	635	ND
	36	1,807	1	97	ND	527	2	1,811	ND	69	ND	1,336	4	ND	ND
	37	229	0	27	ND	575	ND	577	ND	25	2	ND	ND	ND	ND
	38	46	ND	1	ND	32	ND	ND	ND	ND	ND	114	ND	ND	ND
	39	0	ND	ND	ND	2	ND	0	ND	ND	ND	ND	ND	ND	ND
	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Johnson	29	ND	0	59	ND	ND	ND	109	ND	ND	ND	ND	ND	ND	ND
	30	1	73	200	44	4,512	0	1,222	42	96	31	0	ND	ND	ND
	31	180	411	2,250	48	568	6	3,291	90	457	319	34	ND	ND	ND
	32	1,891	753	1,456	84	17,517	154	2,272	91	514	1,806	164	570*	580	671
	33	3,850	1,698	1,873	2	19,028	125	3,364	145	783	ND	ND	ND	1,020	570
	34	5,264	1,816	1,557	11	5,444	15	4,010	66*	976	ND	8,394	309	1,523	343
	35	1,350	198	545	0	2,057	95	5,165	0	1,241	482	3,236	178*	1,022	ND
	36	3,712	60	149	ND	1,238	33	1,775	0	574	ND	2,380	30	ND	ND
	37	670	7	97	ND	702	ND	1,587	ND	337	99	ND	ND	ND	ND
	38	436	0	ND	ND	249	ND	288*	ND	18	ND	1,185	ND	ND	ND
	39	145	ND	ND	ND	10	ND	156*	ND	ND	ND	ND	ND	ND	ND
	40	ND	ND	ND	ND	ND	ND	0	ND	ND	ND	ND	ND	ND	ND
Sherman	29	ND	0	2	ND	ND	ND	0	ND	ND	ND	ND	ND	ND	ND
	30	1	2	164	0	120	0	4	0	0	0	0	ND	ND	ND
	31	298	9	860	6	38	0	61	0	214	0	5	ND	ND	ND
	32	773	97	979	40	348	0	778	4	438	17	37	0	453	2
	33	1,049	285	765	10	723	0	1,076	81	850	0	ND	ND	357	16
	34	397	521	549	4	334	0*	730	1	460	74	368	17	622	42
	35	157	521	785	10	ND	24	941	ND	220	99	254	2	ND	ND
	36	870	145	624	0	413	2*	781	ND	322	ND	222	0	ND	ND
	37	416*	25	232	ND	648	ND	841	ND	237	ND	ND	ND	ND	ND
	38	609	3	21	ND	159	ND	478	ND	75	ND	134	ND	ND	ND
	39	35*	ND	ND	ND	15	ND	ND	ND	ND	ND	ND	ND	ND	ND
	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: * = Incomplete survey.

APPENDIX D: SEDIMENT DATA AND LAB REPORT

Appendix D.1.–Lower Slate Creek sediment compositions, 2011–2024.

Sample Date	Particle Size Data				% Total Solids	% Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
10/3/2011	2	4	94	0.4	78	3.38	<0.55	2.04
7/3/2012	2	0	98	0.1	79.2	3.37	<1.5	1.67
7/2/2013	2	2	96	0	74.6	1.63	ND	1.67
7/28/2014	2.3	3.8	91.8	0.9	75.4	3.22	<1.3	0.577
7/6/2015	1.8	3.1	72.2	22.8	84.4	ND	<1.2	0.473
7/5/2016	0	23.1	55.1	21.8	70.3	7.7	<2.5	0.585
7/7/2017	1.5	6.9	84.5	7.1	59.6	2.8	<3.2	0.494
6/28/2018	1.5	3.3	69.6	25.6	64.2	3	<2.9	0.416
7/22/2019	0	2.6	37.4	60	67.2	2.9	<2.6	0.366
7/8/2020	0.9	2.6	85.5	1.2	73.8	3.15	<1.4	0.612
7/8/2020	0.3	0.7	77.8	19.1	72.8	2.9	1.7	0.376
7/8/2020	0.3	0.4	84.4	13	74.1	2.8	1.33	0.402
7/7/2021	0.1	0.3	76.4	21.6	74	2.75	<1.3	0.352
7/7/2021	0.2	2.5	86.5	8.9	68.6	3.5	<1.5	0.563
7/7/2021	0.3	3.3	99.6	12.8	68.4	3.2	<4.8	0.586
7/5/2022	ND	1.4	84.6	14	70.4	2.4	<0.84	0.411
7/5/2022	ND	1.4	66.9	31.7	71.2	2.6	<0.82	0.469
7/5/2022	ND	1.6	81	17.4	69.5	2.7	<0.82	0.424
7/6/2023	0.5	2	83.1	15.9	70.6	2.2	<1.4	0.32
7/6/2023	0.9	4	76.5	23	67.9	2	<1.4	0.48
7/6/2023	1.1	2	83.2	14.8	72.1	1.9	<1.3	0.32
7/23/2024	0.4	3.8	97.8	7	62.7	2.7	<1.6	0.56
7/23/2024	0.4	1	99.3	4	64.6	2.6	<1.5	0.42
7/23/2024	0.3	1.9	94.4	3.7	66.7	2.9	<1.4	0.54

Note: In 2022, lab results did not distinguish between clay and silt. ND = no data.

Appendix D.2.–West Fork Slate Creek sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/23/2024	0	1	75	23	61.2	6.6	<1.5	0.34
7/23/2024	0	1	72	27	64.0	4	<1.5	1.38
7/23/2024	0	2	96	2	57.8	5.3	<1.7	2.03

Appendix D.3.–East Fork Slate Creek sediment compositions, 2011–2024.

Sample Date	Particle Size Data				% Total Solids	% Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
10/3/2011	10	4	86	1.6	60.2	7.81	<0.55	11
7/10/2012	40	34	26	0	23.7	28.54	<1.5	16.7
7/1/2013	6	12	82	0	43.7	13.3	ND	18.3
7/30/2014	3.8	21.1	75	0	65.5	6.21	<1.5	1.84
7/7/2015	2.3	6.9	82.3	8.5	76.2	ND	<1.3	0.792
7/6/2016	3.5	24.8	53.7	18	21	31.4	<6.8	13
7/7/2017	34.9	32.2	28.8	4	18.9	32.5	<9	16.3
6/29/2018	1.5	6.5	53.5	38.5	74.8	6.7	<1.8	1.75
7/22/2019	0.5	4.5	47.5	47.5	39.1	9.3	<4.5	1.72
7/9/2020	0.9	2.7	59.8	48.9	61.6	7.6	4.8	2.68
7/9/2020	0.9	2.2	24.6	58.6	77.4	3.2	2.1	7.52
7/9/2020	0.6	0.1	31.3	63.8	81.4	3.8	1.9	1.21
7/6/2021	0.1	0.3	17.9	63.1	75.3	3.8	<0.4	0.307
7/6/2021	0.2	0.3	35.9	67.3	72.7	3.5	<0.4	0.733
7/6/2021	0.1	0.3	36.4	58.1	77	4.9	<1.2	5.36
7/6/2022	1.5	3.2	58.6	34	76.5	3.4	<0.74	2.72
7/6/2022	0.8	5.2	35	57.1	84.6	3.4	0.71	2.65
7/6/2022	1.5	6.6	79.2	4.1	84	2.4	<0.69	3.19
7/5/2023	2	11.7	33.1	57.3	55.3	4.3	<1.6	3.07
7/5/2023	0.3	2.5	35	64.8	70.9	5.1	<1.3	1.59
7/5/2023	0.7	3	54.8	39.6	68.4	3.7	<1.4	1.31
7/22/2024	0.3	0.9	89.1	12.4	57	8	<1.7	4.05
7/22/2024	0.1	0.4	11.8	98.8	67.3	5.1	<1.4	2.76
7/22/2024	0.1	0.5	31.2	75.6	70.8	3.1	<1.3	1.03

Note: ND = no data.

Appendix D.4.–Upper Slate Creek SP1 sediment compositions, 2011–2024

Sample Date	Particle Size Data				% Total Solids	% Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
10/6/2011	4	2	94	0	72.1	4.12	<1.5	5.46
7/2/2012	2	0	98	0.3	79.6	2.9	<1.5	3.74
7/1/2013	4	0	96	0.1	74.2	2.73	ND	5.5
7/30/2014	4.3	8.2	87.5	0	72.4	3.88	<1.4	0.868
7/7/2015	1.5	0.2	31.9	66.3	76.5	ND	<1.3	1.04
7/6/2016	0	2.9	73.1	24	62.9	5	<2.2	2.14
7/7/2017	3	4.6	89.9	2.5	72.7	3.45	<2.4	0.843
6/28/2018	2.7	5.3	80.6	11.4	67.6	4.1	<2.7	0.815
8/5/2019	2.5	0.3	60.5	36.6	72.4	3.75	<2.4	0.676
7/9/2020	0.6	0.3	12.4	97.4	76.9	3.5	2.5	0.328
7/9/2020	0.7	0.5	74.4	22.4	70.6	4.1	1.8	0.734
7/9/2020	0.6	0.4	52.3	41	75.5	4.5	2.9	1.05
7/7/2021	0.1	0.9	90.9	4.5	68.2	3.9	<1.5	0.871
7/7/2021	0	0.3	93.3	6.8	67.7	3.7	<1.5	0.585
7/7/2021	0.2	0.7	93.9	5.3	63.7	4.4	<5.2	0.818
7/6/2022	1.4	6	73.3	20.6	86.7	1.3	<0.69	0.775
7/6/2022	0.7	2.7	56.4	27	82.4	1.6	<0.72	0.694
7/6/2022	0.8	4.4	81.1	9.5	83.8	1.5	<0.71	0.72
7/5/2023	0.3	3.4	55.3	42.5	72.6	2.8	<1.3	0.47
7/5/2023	1.9	11.4	83.3	7.5	63.2	3.7	<1.6	0.89
7/5/2023	2.5	13.4	73.9	9.2	64.1	4	<1.5	1.34
7/23/2024	0.1	4.4	106.9	4.1	58.3	5.15	<1.6	1.29
7/23/2024	0	0.6	93.8	15	63.6	4.9	<1.5	0.8
7/23/2024	0	0.2	80.4	22.9	64.8	3.5	<1.5	0.71

Note: ND = no data.

Appendix D.5.–Upper Slate Creek SP2 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/23/2024	0	0	38	62	65.6	3.5	<1.5	0.74
7/23/2024	0	0	35	65	74.0	2.2	<1.3	0.79
7/23/2024	0	0	32	68	75.5	1.6	<1.2	0.34

Appendix D.6.–Lower Johnson Creek sediment compositions, 2011–2024.

Sample Date	Particle Size Data				% Total Solids	% Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
10/3/2011	2	2	96	0	74.3	2.01	<0.55	0.89
7/2/2012	8	0	92	0	77.7	2.55	<1.5	1.19
7/1/2013	2	2	96	0.3	73.2	0.9	ND	1.08
7/30/2014	2.9	4.8	91.4	0.2	73.7	1.93	<1.4	0.263
7/6/2015	0.4	1.1	41.9	56.6	80	ND	<1.3	0.376
8/8/2016	5.1	25.4	69.4	0	71.9	2.4	<2.5	0.422
7/7/2017	4.1	20.8	72.6	2.5	ND	ND	ND	ND
6/29/2018	2.8	5.6	89.4	2.2	77.6	2.35	<2.5	0.483
7/22/2019	1.1	2.4	89.5	7	71.3	2.5	<2.8	0.452
7/9/2020	0.2	1	80.8	15.2	77.4	2.2	2.5	0.298
7/9/2020	0.6	1.7	88.2	6.5	74.2	2.4	3.6	0.341
7/9/2020	0.7	0.8	84.1	3.2	78.8	2.1	1.4	0.269
7/6/2021	0.1	3.8	97.2	1.8	65.4	2.2	<1.4	0.319
7/6/2021	0.2	2.1	87.3	4.7	72.1	2.4	<1.3	0.34
7/6/2021	0.2	2.9	101.6	0.1	62.5	3.4	<1.5	0.27
7/5/2022	2.1	8.6	89.1	0.1	64.3	2.45	<0.92	0.398
7/5/2022	4.2	4.5	89.2	2.1	66.5	2.4	<0.89	0.34
7/5/2022	5.3	18.7	74.7	1.4	59.4	3.7	<1	0.811
7/5/2023	1.7	5.6	86	6.1	71.5	1.75	<1.3	0.277
7/5/2023	1.5	8.1	81.5	9.8	69.4	2.1	<1.4	0.31
7/5/2023	2.2	8.8	74.4	19.6	65.4	1.9	<1.5	0.38
8/9/2024	0.2	3.1	72.6	19.8	70.2	2.05	<1.4	0.367
8/9/2024	0.2	0.3	92.4	11.7	69.8	1.8	ND	0.57
8/9/2024	0.3	5.2	83.3	2.2	72.4	2.1	ND	0.29

Note: ND = no data.

Appendix D.7.–Upper Johnson Creek SP1 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/22/2024	0	1	72	27	80.3	1.2	<1.1	0.42
7/22/2024	0	1	66	33	68.9	1.1	<1.3	0.2
7/22/2024	0	0	88	11	72.3	1	<1.3	<.1

Appendix D.8.–Lower Sherman Creek SP1 sediment compositions, 2011–2024.

Sample Date	Particle Size Data				% Total Solids	% Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
10/4/2011	2	2	96	0.1	73.2	2.75	1.5	0.54
7/3/2012	4	0	96	0.1	78.6	3.05	<0.55	0.82
7/1/2013	2	2	96	0.6	75.7	0.75	ND	0.61
7/28/2014	3.4	6.5	89.9	0.3	76.7	2.5	<1.3	0.354
7/7/2015	1.8	3	86.1	9	76.2	ND	<1.3	0.399
7/6/2016	0.1	0.9	71.2	27.8	80.5	3.1	<2.4	0.322
7/7/2017	1.5	5.4	67	26.1	76.5	2	<2.5	0.288
6/29/2018	2.3	2.5	88.9	6.3	69.3	2.5	<2.6	0.294
7/22/2019	0	1.6	72.2	26.2	61.4	2.6	<3.2	0.317
7/9/2020	1	1	87.3	10.7	68.4	3.2	1.5	0.443
7/9/2020	0.2	1.3	97.7	14.5	70.1	2.6	3.5	0.417
7/9/2020	0.3	0.9	89	14.5	70.5	2.8	3	0.417
7/6/2021	0.3	0.3	104.7	1	70	2.55	<0.5	0.252
7/6/2021	0.3	0	93.5	11.9	67.8	2.1	<1.4	0.19
7/6/2021	0	0.5	88.3	11.1	68.5	2.3	<1.4	0.281
7/6/2022	1.2	11.5	81.6	4.9	70.2	2.25	<0.85	0.501
7/6/2022	0.4	0.7	71	16	81.1	2.1	<0.73	0.291
7/6/2022	0.5	2.4	85.3	8.9	71.1	2.2	<0.79	0.278
7/5/2023	1.4	6.7	79.8	10.8	68.6	1.95	<1.4	0.37
7/5/2023	1.3	4.5	81.3	10.5	77.1	1.7	<1.3	0.3
7/5/2023	1.5	7	82.2	17.4	69.9	1.5	<1.4	0.35
7/22/2024	0.4	0.5	92.8	5.4	76.3	2.1	1.3	0.34
7/22/2024	0	0.5	75.2	26.4	69.8	3.05	<1.3	0.407
7/22/2024	0	0.8	93	8.7	67.9	3	<1.4	0.41

Note: ND = no data.

Appendix D.9.–Upper Sherman Creek sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/22/2024	0	0	57	43	69.6	1.8	<1.3	0.28
7/22/2024	0	1	80	19	61.9	1.9	<1.5	0.27
7/22/2024	0	0	82	18	67.2	2.1	<1.4	0.25

Appendix D.10.–Lower Slate Creek sediment element concentrations, 2011–2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
10/3/2011	13,600	16.2	<0.267	1.46	29.4	56.7	<0.136	7.79	47.4	0.72	220
7/3/2012	13,600	9.31	<0.25	1.22	32	50.7	<0.122	8.45	43.2	<0.17	200
7/2/2013	12,300	23.7	<0.246	1.29	94.5	56.7	<0.122	9.14	73.4	1.94	205
7/28/2014	12,000	20.1	0.08	1.21	20	51.1	0.06	8.78	40.8	1.3	189
7/6/2015	12,000	14.9	0.07	0.53	18.9	39.1	0.04	6.86	30	0.7	131
7/5/2016	12,800	17	0.079	0.735	20.4	39.8	0.057	7.16	35.2	1.3	173
7/7/2017	12,000	16.4	0.101	0.681	18.3	40.9	<0.031	8.16	31.7	<1.6	145
6/28/2018	12,300	14.6	0.077	0.554	19.3	40.1	0.038	6.93	32.4	0.98	129
7/22/2019	11,000	14.3	0.083	0.559	16.9	39	0.074	6.36	34.2	<1	132
7/8/2020	10,700	15.1	0.077	0.602	19.1	41.3	0.0513	6.8	32.8	0.96	84.1
7/8/2020	10,800	12.8	0.063	0.489	19.3	35.5	0.0565	5.57	31.3	0.82	89.9
7/8/2020	9,770	11.3	0.0688	0.587	18.5	34.2	0.039	5.27	31.7	0.87	96.9
7/7/2021	10,600	12.8	0.073	0.58	17.1	39.9	0.058	6.88	32.2	<1.3	124
7/7/2021	12,600	20.3	0.109	0.811	19.7	50.9	0.067	8.07	38.6	1.5	168
7/7/2021	11,300	22.2	0.11	0.838	18.3	48.9	0.078	8.43	36.5	1.6	160
7/5/2022	8,230	8.88	0.065	0.396	13.2	32	0.048	4.19	25.6	<0.97	97.2
7/5/2022	9,100	10.9	0.059	0.381	13.9	32.8	0.034	5.61	23.8	<1	100
7/5/2022	11,400	11.2	0.069	0.482	18	37.2	0.033	6.42	30.6	<1.3	127
7/6/2023	12,300	12.6	0.092	0.441	17.5	43.8	0.118	6.85	29.2	0.84	112
7/6/2023	12,400	12.3	0.065	0.428	18.7	42.7	0.04	5.91	30.1	<1.2	125
7/6/2023	11,500	16.8	0.064	0.394	18.8	35.5	0.042	5.23	28.4	1.9	121
7/23/2024	14,400	18.1	0.117	0.74	24	56.6	0.07	8.29	40.8	1.4	173
7/23/2024	19,400	17.6	0.085	0.89	22.7	52.6	0.061	8.95	42.2	<1.1	176
7/23/2024	12,600	17.2	0.098	0.688	20.8	51	0.064	8.38	36.2	1.4	162

Appendix D.11.–West Fork Slate Creek sediment element concentrations, 2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
7/23/2024	13700	33.8	2.16	21.7	75.4	11.7	0.138	56.3	3.2	0.228	273
7/23/2024	13600	25.8	1.62	21.2	65.5	10	0.075	45.6	4.4	0.205	252
7/23/2024	14000	34.8	1.69	23.2	78.9	12.7	0.132	57.4	3	0.22	271

Appendix D.12.–East Fork Slate Creek sediment element concentrations, 2011–2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
10/3/2011	20,100	30	<0.335	20.9	29.5	88.4	<0.188	8.5	143	1.41	1360
7/10/2012	15,300	24	<0.739	23.2	38.9	159	<0.369	14.2	153	<1.48	1490
7/1/2013	13,900	42.2	<0.425	13.9	32.7	73.4	<0.216	12.5	79.8	4.79	844
7/30/2014	13,300	39.1	0.14	12.1	14.6	55.7	0.04	6.94	85.3	2.4	812
7/7/2015	12,300	22.3	0.12	5.87	15.1	46.7	0.05	4.48	46.8	1.7	333
7/6/2016	16,500	51.5	0.19	8.2	16.5	59.5	0.109	5.54	86.1	3.1	634
7/7/2017	12,900	29.9	0.3	9.65	15	62.3	0.143	6.61	69.9	<5	625
6/29/2018	12,300	59.1	0.146	18.7	13	47.6	0.049	6.07	127	3.37	1020
7/22/2019	12,300	55.9	0.179	10.3	15.5	63.8	<0.039	5.93	83.1	2.9	665
7/9/2020	11,100	23.4	0.13	1.06	14.7	27.4	0.0758	4.5	25.1	1.79	193
7/9/2020	8,290	18	0.0674	4.58	10.2	29.3	0.0368	3.55	44.3	1.26	609
7/9/2020	9,650	26.1	0.0991	4.79	13.9	29.6	0.0932	4.66	49.7	3.4	213
7/6/2021	7,900	35	0.084	8.8	3.1	34.3	0.045	7.5	51.6	1.2	477
7/6/2021	8,770	39.3	0.275	7.39	8.29	33.4	0.046	6.11	56.1	4	551
7/6/2021	8,050	23.3	0.086	5.81	7.76	23.2	0.09	3.12	54.3	1.6	509
7/6/2022	10,100	24.5	0.113	1.79	13.4	22	0.026	5.01	28.2	2.9	204
7/6/2022	6,240	27.9	0.061	8.27	5.32	25.9	<0.021	2.25	58.2	1.05	526
7/6/2022	7,110	11.4	0.057	0.656	7.11	22	0.039	3.25	12.8	<1.2	115
7/5/2023	9,520	30.4	0.116	2.35	9.63	54.8	0.074	4.7	39.4	3	266
7/5/2023	11,100	48.2	0.099	3.68	11.3	37.5	0.054	9.16	44.3	11.6	388
7/5/2023	10,700	32.9	0.192	5.76	8.16	28.7	0.031	5.23	53.3	4.3	432
7/22/2024	13,800	25.4	0.101	2.28	14.3	38.9	<0.035	7.84	43.2	2.2	283
7/22/2024	10,900	13	0.13	1.25	11.6	22.1	0.03	8.41	21.4	<1.3	133
7/22/2024	11,800	34.8	0.078	6.06	10.2	33.6	<0.025	4.04	56.6	2.3	513

Appendix D.13.–Upper Slate Creek SP1 sediment element concentrations, 2011–2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
10/6/2011	22,500	17.9	<0.278	0.722	127	53.4	<0.0489	3.37	87.5	0.809	130
7/2/2012	20,300	14.4	<0.256	0.776	125	55.4	<0.126	4.05	78.4	0.606	134
7/1/2013	14,600	13.5	<0.256	0.75	101	44.6	<0.038	2.7	55	3.21	105
7/30/2014	14,900	19.2	0.06	0.69	84.2	45.8	0.03	2.86	55.7	1.8	111
7/7/2015	14,500	14.2	0.08	0.76	92.2	47	0.11	3.17	54	2.3	109
7/6/2016	14,000	18	0.092	0.507	71.7	37	0.051	2.69	48.5	2.1	111
7/7/2017	15,600	17	0.06	0.49	64.1	38.1	0.03	3.06	47.3	1.4	101
6/28/2018	14,700	19.7	0.101	0.789	105	55.1	0.047	3.97	76.4	2.86	133
8/5/2019	15,100	17.1	0.071	0.808	110	44.5	0.051	3.58	60.2	1.5	116
7/9/2020	9,650	12.3	0.105	0.561	68.2	34.5	0.0393	2.93	45.5	1.9	94.4
7/9/2020	12,600	16.2	0.095	0.472	81.5	37.1	0.173	2.94	49.5	2.06	139
7/9/2020	11,700	18.7	0.0687	0.672	82.3	41	0.0336	3.1	52.7	2.04	86.8
7/7/2021	15,600	14.8	0.08	0.609	83.7	47.7	0.05	3.04	58.3	1.8	117
7/7/2021	13,700	13.5	0.076	0.611	71.1	44.7	0.049	3.75	53.9	1.8	118
7/7/2021	15,200	19.2	0.1	0.73	84.1	57.1	0.051	3.94	63.7	2.2	131
7/6/2022	8,490	14.6	0.066	0.383	40.2	29.5	0.024	2.65	31.3	1.77	71.1
7/6/2022	11,300	13.6	0.061	0.457	58.4	36.5	0.04	2.66	48.3	1.72	97
7/6/2022	11,600	11	0.045	0.342	60.4	34.8	0.029	2.28	38.9	1.1	76.3
7/5/2023	15,600	12.8	0.057	0.485	94.6	42.6	<0.024	3.49	54.2	1.7	103
7/5/2023	16,400	18.9	0.076	0.738	79.3	46.8	0.06	3.38	58.5	1.8	120
7/5/2023	18,500	20.2	0.091	1.05	100	55.5	0.052	3.92	67.9	2.1	147
7/23/2024	17,500	19.6	0.108	0.74	103	62.8	0.063	4.17	70	2.3	133
7/23/2024	17,400	18.4	0.084	0.863	97	56.3	0.028	4.18	71.9	2.3	146
7/23/2024	19,000	19.8	0.091	0.777	112	61.9	0.075	4.29	77.1	2.5	141

Appendix D.14.–Upper Slate Creek SP2 sediment element concentrations, 2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
7/23/2024	14700	19.3	0.618	64.5	45.6	2.42	0.028	53.6	1.4	0.051	104
7/23/2024	13400	16.9	0.327	83.7	34.3	1.52	0.023	49.8	1.2	0.032	69.8
7/23/2024	11100	10.1	0.346	51	27.4	1.35	0.022	44.2	1.1	0.025	63.1

Appendix D.15.–Lower Johnson Creek sediment element concentrations, 2011–2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
10/3/2011	13,100	16.2	<0.266	0.238	31.5	73.1	<0.0386	9.76	27.3	<0.181	93.3
7/2/2012	13,100	12.8	0.342	0.25	35.5	76.8	<0.123	9.45	23.4	<0.167	97.3
7/1/2013	10,300	11.9	0.269	0.492	24.4	56.1	<0.0354	8	15.7	<0.163	121
7/30/2014	10,300	16.5	0.32	0.16	22.2	68.2	0.02	10.9	16.9	<0.5	83.4
7/6/2015	10,900	12.5	0.16	0.15	18.1	71.1	<0.02	8.04	17.7	<0.8	79.7
8/8/2016	9,470	13	0.574	0.15	18.9	76.3	0.02	8.41	15.1	<0.57	65.7
7/6/2017	6,730	10.3	0.172	0.115	11.7	46.2	0.064	5.96	10.3	<1.5	48
6/29/2018	13,600	20.5	0.139	0.264	30.2	68.4	0.015	11.9	24.6	<0.63	109
7/22/2019	10,200	16.1	0.205	0.168	20.2	60.1	<0.028	7.8	16.4	<0.96	81.2
7/9/2020	10,300	21.5	0.107	0.158	19.8	95.4	0.0137	5.44	17.9	<0.51	89.3
7/9/2020	9,850	16.7	0.08	0.181	19.9	53.9	0.0171	8.1	18.4	<0.53	85.8
7/9/2020	9,110	13.3	0.109	0.164	18.8	44.7	0.0187	5.7	16	<0.48	94.1
7/6/2021	9,820	13.8	0.135	0.127	20.5	60	0.034	6.16	16.4	<1.5	70.3
7/6/2021	10,500	12.4	0.118	0.161	21.4	62.1	0.028	6.14	16.4	<1.4	76.4
7/6/2021	11,800	15.6	0.224	0.188	24.5	101	0.048	7.98	19.2	<1.5	98.1
7/5/2022	12,800	20.5	0.154	0.208	22.7	72.6	<0.027	9.37	20.2	<1.2	102
7/5/2022	13,100	19.7	0.121	0.211	24.1	80.3	0.026	9.46	20.5	<1.2	101
7/5/2022	11,800	21	0.245	0.212	21	87.6	<0.03	9.57	18.8	<1.2	91.9
7/5/2023	12,200	17.1	0.074	0.209	21.8	58.1	<0.026	7.24	18.4	<0.2	91.5
7/5/2023	11,900	21.4	0.071	0.201	21.4	58.8	<0.028	8.11	18	<1.2	93.4
7/5/2023	11,000	17.6	0.152	0.214	23.8	64.1	<0.03	8.01	17.2	<1.4	87.6
8/9/2024	12,400	17.9	0.281	0.16	26.3	62.4	0.024	9.04	20.8	<1.4	89
8/9/2024	13,400	17	0.082	0.271	26.2	53.2	0.035	7.41	21.4	<1.1	104
8/9/2024	11,400	14.2	0.188	0.158	23.1	65.9	0.026	9.21	18	<1	84.4

Appendix D.16.–Upper Johnson Creek SP1 sediment element concentrations, 2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
7/22/2024	6840	1.46	0.068	15	38.9	1.34	0.024	9.9	1.2	0.023	28.6
7/22/2024	6950	1.39	0.069	12.4	50.4	1.15	0.024	7.92	1.1	0.027	34.9
7/22/2024	7890	1.18	0.07	14	42.1	1.18	0.025	9.48	1.1	0.026	36.8

Appendix D.17.–Lower Sherman Creek SP1 sediment element concentrations, 2011–2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
10/4/2011	18,200	28.9	<0.259	0.389	46.2	94	<0.0455	6.7	45.9	<0.176	110
7/3/2012	17,900	24.3	0.289	0.578	51.4	79.1	<0.124	8.43	40.2	<0.174	128
7/1/2013	15,400	25.4	0.306	<0.52	37.4	69.4	<0.0384	7.39	30.9	1.77	111
7/28/2014	14,900	27.9	0.14	0.36	33.6	68.4	0.03	6.97	31.1	1.2	119
7/7/2015	17,500	37	0.25	0.32	30.9	70.8	0.02	11	38	2	134
7/6/2016	13,800	19.9	0.097	0.388	27.5	72.5	<0.02	6.6	32.9	1.1	123
7/7/2017	17,400	23.5	0.097	0.194	31.8	58.1	0.045	4.69	28.5	<1.3	90.2
6/29/2018	15,600	35.2	0.135	0.353	33.7	81.9	<0.014	8.05	34.8	<0.65	120
7/22/2019	17,400	42.4	0.205	0.222	36.1	59.6	<0.032	6.19	34.2	<1.2	118
7/9/2020	15,800	30.2	0.092	0.276	32.1	49.3	0.0313	6.65	29.6	0.71	86.5
7/9/2020	14,000	22.6	0.132	0.223	30.1	52.2	0.0262	5.66	27.7	0.72	104
7/9/2020	13,000	26.5	0.171	0.201	30.5	54.8	0.0243	9.68	27.1	0.86	104
7/6/2021	15,900	16.3	0.088	0.171	46.9	72	<0.028	30.1	36.2	<1.4	87
7/6/2021	11,800	11.3	0.131	0.156	39.5	61.4	<0.029	5.16	33.6	<1.4	77.8
7/6/2021	13,500	15.6	0.09	0.161	43.3	105	0.029	4.1	30.5	<1.4	79.2
7/6/2022	7,860	10.5	0.04	0.087	19.8	31.7	<0.027	2.24	16.1	<1.2	41.8
7/6/2022	2,490	1.57	<0.021	<0.021	6.3	8.41	<0.021	0.585	4.72	<1.1	13
7/6/2022	12,700	21.3	0.117	0.109	27.1	40.6	0.027	7.75	22.6	<1.2	64.1
7/5/2023	16,300	24.2	0.105	0.189	29.1	59	<0.027	5.25	28	<1.4	90
7/5/2023	17,000	23	0.132	0.198	36.7	58.5	0.054	5.9	30	2.08	95.2
7/5/2023	18,000	26.6	0.218	0.353	35	78.1	0.038	8.89	33.5	1.9	111
7/22/2024	13,900	30.4	0.103	0.236	35.5	66.9	0.297	4.36	32.8	1	101
7/22/2024	16,100	23.3	0.111	0.177	36.9	72.4	<0.028	5.43	31.4	0.7	91
7/22/2024	18,400	35	0.135	0.226	37	86.4	<0.027	8.93	35.6	<1.3	111

Appendix D.18.–Upper Sherman Creek sediment element concentrations, 2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
7/22/2024	18100	37.9	0.113	31.7	62.1	6.74	0.025	31	1.4	0.141	100
7/22/2024	21900	63.1	0.144	38	112	6.07	0.029	42.1	1.2	0.177	121
7/22/2024	19500	46.2	0.101	33.3	66.2	8.04	0.028	33.5	1.2	0.126	107

ALS Environmental
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November 04, 2024

Analytical Report for Service Request No: K2407895
Revised Service Request No: K2407895.01

Erika King
Alaska Department of Fish and Game
Division of Habitat
802 3rd Street
P.O. Box 110024
Douglas, AK 99811-0024

RE: Coeur AK Biomonitoring

Dear Erika,

Enclosed is the revised report for the sample(s) submitted to our laboratory July 31, 2024
For your reference, these analyses have been assigned our service request number **K2407895.**

The report was revised to include the results for TVS.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
12:05 pm, Nov 04, 2024

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Client: Alaska Department of Fish and Game
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Service Request: K2407895
Date Received: 07/31/2024

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Thirteen soil samples were received for analysis at ALS Environmental on 07/31/2024. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

Method 200.8, 08/14/2024: The Relative Percent Difference (RPD) for the replicate analysis of Chromium in sample 2024 KGM UJC S1 and Arsenic in sample 2024 KGM LSH S1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the samples. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 200.8, 08/14/2024: The matrix spike recovery of Chromium for sample 2024 KGM UJC S1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

General Chemistry:

Method PSEP Sulfide, 08/02/2024: Samples in this delivery group were received past holding time. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

Approved by Noe D. Diaz Date 09/19/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
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Phone (360)577- 7222 Fax (360)636- 1068
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CHAIN OF CUSTODY

~~124481~~

001

SR# K2407895

COC Set____of____

COC#____

ALS
1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	Coeur AK Biomintoring
Project Number	
Project Manager	Erika King
Company	Coeur AK / ADFG
Address	802 3rd St. Douglas AK 99824
Phone #	907 465 6979
email	Erika.King@alaska.gov
Sampler Signature	
Sampler Printed Name	Greg Albrecht

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D: 160.4 Modified / TVS	7D: PSEP Sulfide / PSEF Sulfide	14D: PSEP TOC / PSEP TOC	14D: PSEP TOC / PSEP TOC T	28D: 7471B / Hg	180D: 200.8 / Metals T	180D: ASTM D422M / Particle Size	999D: 160.3 Modified / TS	T	D	B	W	S	Remarks
1. 2024 KGM UJC S1		7/22	1530	Soil	X	X	X	X	X	X	X	X	X						
2. 2024 KGM UJC S2		7/22	1530		X	X	X	X	X	X	X	X	X						
3. 2024 KGM UJC S3		7/22	1530		X	X	X	X	X	X	X	X	X						
4. 2024 KGM USH S1		7/22	1100		X	X	X	X	X	X	X	X	X						
5. 2024 KGM USH S2		7/22	1100		X	X	X	X	X	X	X	X	X						
6. 2024 KGM USH S3		7/22	1100		X	X	X	X	X	X	X	X	X						
7.																			
8.																			
9.																			
10.																			

Report Requirements

- ___ I. Routine Report: Method Blank, Surrogate, as required
- ✓ II. Report Dup., MS, MSD as required
- ___ III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- ___ V. EDD

Invoice Information

P.O.#____

Bill To: Coeur AK

pstrow@coeur.com

Turnaround Requirements

___ 24 hr ___ 48 hr

___ 5 Day

✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

Send lab report to

Erika.King@alaska.gov

jesse.lingren@alaska.gov

Send billing to

pstrow@coeur.com

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature Naomi Rederth	Signature	Signature	Signature	Signature
Printed Name Greg Albrecht	Printed Name AS	Printed Name	Printed Name	Printed Name	Printed Name
Firm ADFG	Firm 7/31/24 0920	Firm	Firm	Firm	Firm
Date/Time 7/26/24 0930	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

ALS

CHAIN OF CUSTODY

~~124481~~

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SR# K2407895

COC Set ____ of ____

COC# ____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Coeur AK Biomonitoring | Project Number:
Project Manager: Erika King
Company: Coeur-AK/ADFG
Address: 802 3rd st. Douglas AK 99824
Phone #: 907 465-6979 | email: erika.king@alaska.gov
Sampler Signature: | Sampler Printed Name: Greg Albrecht

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D: H60 4 Modified / TVS	7D: PSEP Sulfide / PSEP Sulfide	14D: PSEP TOC / PSEP TOC	14D: PSEP TOC / PSEP TOC T	28D: 7471B / Hg	180D: 200.8 / Metals T	180D: ASTM D422M / Partsize	999D: H60 3 Modified / TS	F	G	S	T	U	Remarks
1. 2024KGMEFSCS1		7/22	1400	Soil	3	X	X	X	X	X	X	X	X						
2. 2024KGMEFSCS2		7/22	1400		3	X	X	X	X	X	X	X	X						
3. 2024KGMEFSCS3		7/22	1400		3	X	X	X	X	X	X	X	X						
4. 2024KGMLSCS1		7/23	1150		3	X	X	X	X	X	X	X	X						
5. 2024KGMLSCS2		7/23	1150		3	X	X	X	X	X	X	X	X						
6. 2024KGMLSCS3		7/23	1150		3	X	X	X	X	X	X	X	X						
7. 2024KGMLSHS1		7/22	1000	↓	3	X	X	X	X	X	X	X	X						
8. ~~2024KGMLSHS2~~																			
9. ~~2024KGMLSHS3~~																			
10.																			

Report Requirements

- ___ I. Routine Report: Method Blank, Surrogate, as required
- ✓ II. Report Dup., MS, MSD as required
- ___ III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- ___ V. EDD

Invoice Information

P.O.#
Bill To: Coeur AK
pstraw@coeur.com

Turnaround Requirements

___ 24 hr ___ 48 hr
✓ 6 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be ~~B~~ (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:
Send lab reports to:
Erika.king@alaska.gov
Jesse.lindgren@alaska.gov

send billing info to:
pstraw@coeur.com

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Greg Albrecht	Printed Name: AIS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: ADFG	Firm: 7/31/24 0920	Firm	Firm	Firm	Firm
Date/Time: 7/29/24 0930	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PM Mark

Cooler Receipt and Preservation Form

Client ADFG Service Request K24 074855

Received: 7/31/24 Opened: 7/31/24 By: NP Unloaded: 7/31/24 By: NP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
6.1	3.7	IR02	4 of 4			2776 3769 6687	
2.7		↓	2 of 4			" 6605	
4.3			3 of 4			" 6671	
3.9		↓	1 of 4			" 6654	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* (*Bubble Wrap*) (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y (N)
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y (N)
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:
	SHORT HOLD	

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
2024KGMUSCS2 (Sulfide lar)	40z Zinc Acetate		L		Contained in plastic bag				

Notes, Discrepancies, Resolutions: Limited volume for 2024KGMUSCSP2S3

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024 KGM UJC S1	K2407895-001	**80.3**	-	-	1	08/01/24 12:04	
2024 KGM UJC S2	K2407895-002	**68.9**	-	-	1	08/01/24 12:04	
2024 KGM UJC S3	K2407895-003	**72.3**	-	-	1	08/01/24 12:04	
2024 KGM USH S1	K2407895-004	**69.6**	-	-	1	08/01/24 12:04	
2024 KGM USH S2	K2407895-005	**61.9**	-	-	1	08/01/24 12:04	
2024 KGM USH S3	K2407895-006	**67.2**	-	-	1	08/01/24 12:04	
2024 KGMEFSC S1	K2407895-007	**57.0**	-	-	1	08/01/24 12:04	
2024 KGMEFSC S2	K2407895-008	**67.3**	-	-	1	08/01/24 12:04	
2024 KGMEFSC S3	K2407895-009	**70.8**	-	-	1	08/01/24 12:04	
2024 KGM LSC S1	K2407895-010	**62.7**	-	-	1	08/01/24 12:04	
2024 KGM LSC S2	K2407895-011	**64.6**	-	-	1	08/01/24 12:04	
2024 KGM LSC S3	K2407895-012	**66.7**	-	-	1	08/01/24 12:04	
2024 KGM LSH S1	K2407895-013	**76.5**	-	-	1	08/01/24 12:04	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Replicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2024 KGM UJC S1	K2407895-001DUP	-	-	80.3	79.2	79.8	1	20	08/01/24
2024 KGM LSH S1	K2407895-013DUP	-	-	76.5	76.0	76.3	<1	20	08/01/24

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.4 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method

Solids, Total Volatile

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024 KGM UJC S1	K2407895-001	**1.20**	0.10	-	1	08/01/24 12:45	
2024 KGM UJC S2	K2407895-002	**1.10**	0.10	-	1	08/01/24 12:45	
2024 KGM UJC S3	K2407895-003	**1.00**	0.10	-	1	08/01/24 12:45	
2024 KGM USH S1	K2407895-004	**1.80**	0.10	-	1	08/01/24 12:45	
2024 KGM USH S2	K2407895-005	**1.90**	0.10	-	1	08/01/24 12:45	
2024 KGM USH S3	K2407895-006	**2.10**	0.10	-	1	08/01/24 12:45	
2024 KGMEFSC S1	K2407895-007	**8.00**	0.10	-	1	08/01/24 12:45	
2024 KGMEFSC S2	K2407895-008	**5.10**	0.10	-	1	08/01/24 12:45	
2024 KGMEFSC S3	K2407895-009	**3.10**	0.10	-	1	08/01/24 12:45	
2024 KGM LSC S1	K2407895-010	**2.70**	0.10	-	1	08/01/24 12:45	
2024 KGM LSC S2	K2407895-011	**2.60**	0.10	-	1	08/01/24 12:45	
2024 KGM LSC S3	K2407895-012	**2.90**	0.10	-	1	08/01/24 12:45	
2024 KGM LSH S1	K2407895-013	**2.30**	0.10	-	1	08/01/24 12:45	
Method Blank	K2407895-MB1	ND	0.10	-	1	08/01/24 12:45	U

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.4 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method

Replicate Sample Summary

Solids, Total Volatile

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2024 KGM UJC S1	K2407895-001DUP	0.10	-	1.20	1.00	1.10	18	20	08/01/24
2024 KGM LSH S1	K2407895-013DUP	0.10	-	2.30	1.90	2.10	19	20	08/01/24

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General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry

Sulfide, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024 KGM UJC S1	K2407895-001	ND U	1.1	0.4	1	08/02/24 18:25	8/2/24	*
2024 KGM UJC S2	K2407895-002	ND U	1.3	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGM UJC S3	K2407895-003	ND U	1.3	0.4	1	08/02/24 18:25	8/2/24	*
2024 KGM USH S1	K2407895-004	ND U	1.3	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGM USH S2	K2407895-005	ND U	1.5	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGM USH S3	K2407895-006	ND U	1.4	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGMEFSC S1	K2407895-007	ND U	1.7	0.6	1	08/02/24 18:25	8/2/24	*
2024 KGMEFSC S2	K2407895-008	ND U	1.4	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGMEFSC S3	K2407895-009	ND U	1.3	0.4	1	08/02/24 18:25	8/2/24	*
2024 KGM LSC S1	K2407895-010	ND U	1.6	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGM LSC S2	K2407895-011	ND U	1.5	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGM LSC S3	K2407895-012	ND U	1.4	0.5	1	08/02/24 18:25	8/2/24	*
2024 KGM LSH S1	K2407895-013	ND U	1.3	0.4	1	08/02/24 18:25	8/2/24	*
Method Blank	K2407895-MB1	ND U	1.0	0.3	1	08/02/24 18:25	8/2/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/02/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024 KGM UJC S3	**Units:**	mg/Kg
Lab Code:	K2407895-003	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407895-003DUP Result	Triplicate K2407895-003TRP Result	Average	RSD	RSD Limit
Sulfide, Total	1.3	0.4	ND	ND	ND	NC	NC	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/2/24
		Date Extracted:	08/2/24

Duplicate Matrix Spike Summary
Sulfide, Total

Sample Name:	2024 KGM UJC S3	**Units:**	mg/Kg
Lab Code:	K2407895-003	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K2407895-003MS			K2407895-003DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfide, Total	ND U	500	510	97	470	500	94	28-175	7	20

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/02/24
Sample Matrix:	Soil	**Date Extracted:**	08/02/24

Lab Control Sample Summary
Sulfide, Total

Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	849512

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407895-LCS1	402	390	103	39-166

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

Continuing Calibration Verification (CCV) Summary

Sulfide, Total

Analysis Method: PSEP Sulfide **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	849512	KQ2412368-01	08/02/24 18:25	0.587	0.603	103	90-110
CCV2	849512	KQ2412368-02	08/02/24 18:25	0.587	0.602	103	90-110
CCV3	849512	KQ2412368-03	08/02/24 18:25	0.587	0.603	103	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2407895
Project: Coeur AK Biomonitoring

Continuing Calibration Blank (CCB) Summary
Sulfide, Total

Analysis Method: PSEP Sulfide **Units:**mg/Kg

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	849512	KQ2412368-04	08/02/24 18:25	1.0	0.3	ND	U
CCB2	849512	KQ2412368-05	08/02/24 18:25	1.0	0.3	ND	U
CCB3	849512	KQ2412368-06	08/02/24 18:25	1.0	0.3	ND	U

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	ALS SOP	**Basis:**	Dry, per Method

Carbon, Total Organic (TOC)

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024 KGM UJC S1	K2407895-001	**0.42**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM UJC S2	K2407895-002	**0.20**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM UJC S3	K2407895-003	**0.09 J**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM USH S1	K2407895-004	**0.28**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM USH S2	K2407895-005	**0.27**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM USH S3	K2407895-006	**0.25**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGMEFSC S1	K2407895-007	**4.05**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGMEFSC S2	K2407895-008	**2.76**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGMEFSC S3	K2407895-009	**1.03**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM LSC S1	K2407895-010	**0.56**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGM LSC S2	K2407895-011	**0.42**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGM LSC S3	K2407895-012	**0.54**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGM LSH S1	K2407895-013	**0.34**	0.10	0.005	1	08/02/24 09:22	8/2/24	
Method Blank	K2407895-MB1	ND U	0.10	0.005	1	08/02/24 09:22	NA	
Method Blank	K2407895-MB2	ND U	0.10	0.005	1	08/05/24 12:06	NA	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/02/24
Sample Matrix:	Soil	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method
		Analysis Lot:	849441

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407895-LCS1	3.23	2.99	108	74-118

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/05/24
Sample Matrix:	Soil	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method
		Analysis Lot:	849463

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407895-LCS2	3.22	2.99	108	74-118

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:** Percent

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	849441	KQ2411967-07	08/02/24 09:22	12.0	12.2	102	90-110
CCV2	849441	KQ2411967-08	08/02/24 09:22	12.0	12.2	102	90-110
CCV3	849441	KQ2411967-09	08/02/24 09:22	12.0	12.2	102	90-110
CCV4	849441	KQ2411967-10	08/02/24 09:22	12.0	12.2	102	90-110
CCV5	849463	KQ2411984-07	08/05/24 12:06	12.0	12.2	102	90-110
CCV6	849463	KQ2411984-08	08/05/24 12:06	12.0	12.1	101	90-110
CCV7	849463	KQ2411984-09	08/05/24 12:06	12.0	12.2	102	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2407895
Project: Coeur AK Biomonitoring

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:**Percent

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	849441	KQ2411967-11	08/02/24 09:22	0.10	0.005	ND	U
CCB2	849441	KQ2411967-12	08/02/24 09:22	0.10	0.005	ND	U
CCB3	849441	KQ2411967-13	08/02/24 09:22	0.10	0.005	ND	U
CCB4	849441	KQ2411967-14	08/02/24 09:22	0.10	0.005	ND	U
CCB5	849463	KQ2411984-10	08/05/24 12:06	0.10	0.005	ND	U
CCB6	849463	KQ2411984-11	08/05/24 12:06	0.10	0.005	ND	U
CCB7	849463	KQ2411984-12	08/05/24 12:06	0.10	0.005	ND	U

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM UJC S1
Lab Code: K2407895-001

Sand Fraction: Dry Weight (Grams)	31.5844
Sand Fraction: Weight Recovered (Grams)	31.4739
Sand Fraction: Percent Recovery	99.65

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	1.2889	3.99
Gravel, Fine	-2 Ø to -1 Ø	7.2541	22.43
Sand, Very Coarse	-1 to 0 Ø	10.2514	31.70
Sand, Coarse	0 to 1 Ø	6.2709	19.39
Sand, Medium	1 to 2 Ø	3.4173	10.57
Sand, Fine	2 to 3 Ø	2.3657	7.32
Sand, Very Fine	3 to 4 Ø	0.4053	1.25
75.0 µm	4 Ø	0.3600	1.11
31.3 µm	5 Ø	0.1650	0.51
15.6 µm	6 Ø	0.1350	0.42
7.8 µm	7 Ø	0.0100	0.03
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0050	0.02
0.98 µm	> 10 Ø	0.0450	0.14
		31.9736	98.88

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM UJC S1
Lab Code: K2407895-001DUP

Sand Fraction: Dry Weight (Grams)	32.5031
Sand Fraction: Weight Recovered (Grams)	32.4873
Sand Fraction: Percent Recovery	99.95

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	3.2800	10.14
Gravel, Fine	-2 Ø to -1 Ø	8.3162	25.72
Sand, Very Coarse	-1 to 0 Ø	10.1927	31.52
Sand, Coarse	0 to 1 Ø	6.0451	18.69
Sand, Medium	1 to 2 Ø	2.5215	7.80
Sand, Fine	2 to 3 Ø	1.6921	5.23
Sand, Very Fine	3 to 4 Ø	0.3196	0.99
75.0 µm	4 Ø	0.3650	1.13
31.3 µm	5 Ø	0.1200	0.37
15.6 µm	6 Ø	0.0450	0.14
7.8 µm	7 Ø	0.0250	0.08
3.9 µm	8 Ø	0.0050	0.02
1.95 µm	9 Ø	0.0100	0.03
0.98 µm	> 10 Ø	0.0400	0.12
		32.9772	101.98

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM UJC S2
Lab Code: K2407895-002

Sand Fraction: Dry Weight (Grams)	29.9619
Sand Fraction: Weight Recovered (Grams)	29.9233
Sand Fraction: Percent Recovery	99.87

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	2.0339	7.34
Gravel, Fine	-2 Ø to -1 Ø	7.9895	28.83
Sand, Very Coarse	-1 to 0 Ø	7.0317	25.37
Sand, Coarse	0 to 1 Ø	5.8578	21.13
Sand, Medium	1 to 2 Ø	4.2607	15.37
Sand, Fine	2 to 3 Ø	2.3891	8.62
Sand, Very Fine	3 to 4 Ø	0.2794	1.01
75.0 µm	4 Ø	0.2150	0.78
31.3 µm	5 Ø	0.0950	0.34
15.6 µm	6 Ø	0.0600	0.22
7.8 µm	7 Ø	0.0200	0.07
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0050	0.02
0.98 µm	> 10 Ø	0.0550	0.20
		30.2921	109.29

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM UJC S3
Lab Code: K2407895-003

Sand Fraction: Dry Weight (Grams)	28.7458
Sand Fraction: Weight Recovered (Grams)	28.7390
Sand Fraction: Percent Recovery	99.98

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	1.4337	4.94
Gravel, Fine	-2 Ø to -1 Ø	1.7879	6.16
Sand, Very Coarse	-1 to 0 Ø	6.1033	21.02
Sand, Coarse	0 to 1 Ø	9.7071	33.44
Sand, Medium	1 to 2 Ø	6.8419	23.57
Sand, Fine	2 to 3 Ø	2.6896	9.26
Sand, Very Fine	3 to 4 Ø	0.1487	0.51
75.0 µm	4 Ø	0.1250	0.43
31.3 µm	5 Ø	0.0500	0.17
15.6 µm	6 Ø	0.0150	0.05
7.8 µm	7 Ø	0.0050	0.02
3.9 µm	8 Ø	0.0200	0.07
1.95 µm	9 Ø	0.0050	0.02
0.98 µm	> 10 Ø	0.0500	0.17
		28.9822	99.83

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM USH S1
Lab Code: K2407895-004

Sand Fraction: Dry Weight (Grams)	34.3983
Sand Fraction: Weight Recovered (Grams)	34.2903
Sand Fraction: Percent Recovery	99.69

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	3.5869	10.24
Gravel, Fine	-2 Ø to -1 Ø	11.1085	31.70
Sand, Very Coarse	-1 to 0 Ø	13.1174	37.44
Sand, Coarse	0 to 1 Ø	4.6133	13.17
Sand, Medium	1 to 2 Ø	1.1640	3.32
Sand, Fine	2 to 3 Ø	0.5838	1.67
Sand, Very Fine	3 to 4 Ø	0.0777	0.22
75.0 µm	4 Ø	0.0650	0.19
31.3 µm	5 Ø	0.0300	0.09
15.6 µm	6 Ø	0.0050	0.01
7.8 µm	7 Ø	0.0250	0.07
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0050	0.01
0.98 µm	> 10 Ø	0.0700	0.20
		34.4516	98.32

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM USH S2
Lab Code: K2407895-005

Sand Fraction: Dry Weight (Grams)	32.7148
Sand Fraction: Weight Recovered (Grams)	32.6791
Sand Fraction: Percent Recovery	99.89

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.9156	2.96
Gravel, Fine	-2 Ø to -1 Ø	5.5267	17.85
Sand, Very Coarse	-1 to 0 Ø	10.1403	32.75
Sand, Coarse	0 to 1 Ø	8.2142	26.53
Sand, Medium	1 to 2 Ø	4.2089	13.59
Sand, Fine	2 to 3 Ø	3.1005	10.01
Sand, Very Fine	3 to 4 Ø	0.4200	1.36
75.0 µm	4 Ø	0.2150	0.69
31.3 µm	5 Ø	0.1050	0.34
15.6 µm	6 Ø	0.0400	0.13
7.8 µm	7 Ø	0.0350	0.11
3.9 µm	8 Ø	0.0200	0.06
1.95 µm	9 Ø	0.0250	0.08
0.98 µm	> 10 Ø	0.0750	0.24
		33.0412	106.72

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM USH S3
Lab Code: K2407895-006

Sand Fraction: Dry Weight (Grams)	33.2306
Sand Fraction: Weight Recovered (Grams)	33.1623
Sand Fraction: Percent Recovery	99.79

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.1103	0.33
Gravel, Fine	-2 Ø to -1 Ø	5.8091	17.14
Sand, Very Coarse	-1 to 0 Ø	14.0981	41.60
Sand, Coarse	0 to 1 Ø	9.2660	27.34
Sand, Medium	1 to 2 Ø	2.7467	8.11
Sand, Fine	2 to 3 Ø	0.9865	2.91
Sand, Very Fine	3 to 4 Ø	0.1008	0.30
75.0 µm	4 Ø	0.1100	0.32
31.3 µm	5 Ø	0.0200	0.06
15.6 µm	6 Ø	0.0150	0.04
7.8 µm	7 Ø	0.0300	0.09
3.9 µm	8 Ø	0.0050	0.01
1.95 µm	9 Ø	0.0100	0.03
0.98 µm	> 10 Ø	0.0850	0.25
		33.3925	98.54

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMEFSC S1
Lab Code: K2407895-007

Sand Fraction: Dry Weight (Grams)	23.2751
Sand Fraction: Weight Recovered (Grams)	23.4099
Sand Fraction: Percent Recovery	100.58

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.5575	2.43
Gravel, Fine	-2 Ø to -1 Ø	2.2795	9.94
Sand, Very Coarse	-1 to 0 Ø	7.4053	32.28
Sand, Coarse	0 to 1 Ø	9.0081	39.26
Sand, Medium	1 to 2 Ø	2.6400	11.51
Sand, Fine	2 to 3 Ø	1.2671	5.52
Sand, Very Fine	3 to 4 Ø	0.1134	0.49
75.0 µm	4 Ø	0.0650	0.28
31.3 µm	5 Ø	0.0800	0.35
15.6 µm	6 Ø	0.0500	0.22
7.8 µm	7 Ø	0.0050	0.02
3.9 µm	8 Ø	0.0200	0.09
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0400	0.17
		23.5309	102.56

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMEFSC S2
Lab Code: K2407895-008

Sand Fraction: Dry Weight (Grams)	59.8048
Sand Fraction: Weight Recovered (Grams)	59.8861
Sand Fraction: Percent Recovery	100.14

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	38.1219	70.61
Gravel, Fine	-2 Ø to -1 Ø	15.2205	28.19
Sand, Very Coarse	-1 to 0 Ø	4.7310	8.76
Sand, Coarse	0 to 1 Ø	0.9340	1.73
Sand, Medium	1 to 2 Ø	0.2958	0.55
Sand, Fine	2 to 3 Ø	0.3034	0.56
Sand, Very Fine	3 to 4 Ø	0.0810	0.15
75.0 µm	4 Ø	0.0750	0.14
31.3 µm	5 Ø	0.0800	0.15
15.6 µm	6 Ø	0.0450	0.08
7.8 µm	7 Ø	0.0250	0.05
3.9 µm	8 Ø	0.0050	0.01
1.95 µm	9 Ø	0.0200	0.04
0.98 µm	> 10 Ø	0.0200	0.04
		59.9576	111.05

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMEFSC S3
Lab Code: K2407895-009

Sand Fraction: Dry Weight (Grams)	38.0543
Sand Fraction: Weight Recovered (Grams)	38.1248
Sand Fraction: Percent Recovery	100.19

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	14.6410	41.13
Gravel, Fine	-2 Ø to -1 Ø	12.2585	34.44
Sand, Very Coarse	-1 to 0 Ø	7.4337	20.88
Sand, Coarse	0 to 1 Ø	2.4009	6.75
Sand, Medium	1 to 2 Ø	0.6763	1.90
Sand, Fine	2 to 3 Ø	0.5010	1.41
Sand, Very Fine	3 to 4 Ø	0.0855	0.24
75.0 µm	4 Ø	0.1050	0.29
31.3 µm	5 Ø	0.0400	0.11
15.6 µm	6 Ø	0.0100	0.03
7.8 µm	7 Ø	0.0350	0.10
3.9 µm	8 Ø	0.0050	0.01
1.95 µm	9 Ø	0.0250	0.07
0.98 µm	> 10 Ø	0.0000	0.00
		38.2169	107.37

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM LSC S1
Lab Code: K2407895-010

Sand Fraction: Dry Weight (Grams)	19.9659
Sand Fraction: Weight Recovered (Grams)	20.0983
Sand Fraction: Percent Recovery	100.66

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.2111	1.11
Gravel, Fine	-2 Ø to -1 Ø	1.1057	5.84
Sand, Very Coarse	-1 to 0 Ø	4.0094	21.17
Sand, Coarse	0 to 1 Ø	6.8549	36.20
Sand, Medium	1 to 2 Ø	3.8817	20.50
Sand, Fine	2 to 3 Ø	3.1829	16.81
Sand, Very Fine	3 to 4 Ø	0.5938	3.14
75.0 µm	4 Ø	0.5000	2.64
31.3 µm	5 Ø	0.1100	0.58
15.6 µm	6 Ø	0.0800	0.42
7.8 µm	7 Ø	0.0300	0.16
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0400	0.21
0.98 µm	> 10 Ø	0.0300	0.16
		20.6295	108.95

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM LSC S2
Lab Code: K2407895-011

Sand Fraction: Dry Weight (Grams)	20.1749
Sand Fraction: Weight Recovered (Grams)	20.1557
Sand Fraction: Percent Recovery	99.90

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.0000	0.00
Gravel, Fine	-2 Ø to -1 Ø	0.7794	4.01
Sand, Very Coarse	-1 to 0 Ø	4.7376	24.36
Sand, Coarse	0 to 1 Ø	6.8298	35.12
Sand, Medium	1 to 2 Ø	4.5908	23.61
Sand, Fine	2 to 3 Ø	2.9231	15.03
Sand, Very Fine	3 to 4 Ø	0.2220	1.14
75.0 µm	4 Ø	0.1050	0.54
31.3 µm	5 Ø	0.0650	0.33
15.6 µm	6 Ø	0.0050	0.03
7.8 µm	7 Ø	0.0100	0.05
3.9 µm	8 Ø	0.0150	0.08
1.95 µm	9 Ø	0.0200	0.10
0.98 µm	> 10 Ø	0.0350	0.18
		20.3377	104.59

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM LSC S3
Lab Code: K2407895-012

Sand Fraction: Dry Weight (Grams)	19.9827
Sand Fraction: Weight Recovered (Grams)	19.9377
Sand Fraction: Percent Recovery	99.77

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.0000	0.00
Gravel, Fine	-2 Ø to -1 Ø	0.7493	3.72
Sand, Very Coarse	-1 to 0 Ø	3.0812	15.28
Sand, Coarse	0 to 1 Ø	5.3008	26.28
Sand, Medium	1 to 2 Ø	5.1088	25.33
Sand, Fine	2 to 3 Ø	5.0668	25.12
Sand, Very Fine	3 to 4 Ø	0.4864	2.41
75.0 µm	4 Ø	0.2450	1.21
31.3 µm	5 Ø	0.0650	0.32
15.6 µm	6 Ø	0.0300	0.15
7.8 µm	7 Ø	0.0400	0.20
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0050	0.02
0.98 µm	> 10 Ø	0.0550	0.27
		20.2333	100.32

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM LSH S1
Lab Code: K2407895-013

Sand Fraction: Dry Weight (Grams)	30.1983
Sand Fraction: Weight Recovered (Grams)	30.1388
Sand Fraction: Percent Recovery	99.80

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.2288	0.75
Gravel, Fine	-2 Ø to -1 Ø	1.4256	4.65
Sand, Very Coarse	-1 to 0 Ø	9.1814	29.93
Sand, Coarse	0 to 1 Ø	14.2725	46.53
Sand, Medium	1 to 2 Ø	3.8712	12.62
Sand, Fine	2 to 3 Ø	1.0659	3.48
Sand, Very Fine	3 to 4 Ø	0.0702	0.23
75.0 µm	4 Ø	0.0700	0.23
31.3 µm	5 Ø	0.0300	0.10
15.6 µm	6 Ø	0.0100	0.03
7.8 µm	7 Ø	0.0300	0.10
3.9 µm	8 Ø	0.0300	0.10
1.95 µm	9 Ø	0.0350	0.11
0.98 µm	> 10 Ø	0.0500	0.16
		30.3706	99.02

Metals

ALS Environmental—Kelso Laboratory
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www.alsglobal.com

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 15:30
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM UJC S1	**Basis:**	Dry
Lab Code:	K2407895-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**6630**	mg/Kg	2.5	0.7	5	08/14/24 09:25	08/08/24	
Arsenic	200.8	**1.11**	mg/Kg	0.62	0.07	5	08/14/24 09:25	08/08/24	
Cadmium	200.8	**0.067**	mg/Kg	0.025	0.009	5	08/14/24 09:25	08/08/24	
Chromium	200.8	**11.5**	mg/Kg	0.25	0.07	5	08/14/24 09:25	08/08/24	
Copper	200.8	**35.4**	mg/Kg	0.12	0.05	5	08/14/24 09:25	08/08/24	
Lead	200.8	**1.30**	mg/Kg	0.054	0.022	5	08/28/24 07:59	08/27/24	
Mercury	7471B	**0.010 J**	mg/Kg	0.022	0.002	1	08/05/24 10:34	08/02/24	
Nickel	200.8	**8.49**	mg/Kg	0.25	0.04	5	08/14/24 09:25	08/08/24	
Selenium	200.8	ND U	mg/Kg	1.2	0.1	5	08/14/24 09:25	08/08/24	
Silver	200.8	**0.022 J**	mg/Kg	0.025	0.005	5	08/14/24 09:25	08/08/24	
Zinc	200.8	**27.0**	mg/Kg	0.62	0.25	5	08/14/24 09:25	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 15:30
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM UJC S2	**Basis:**	Dry
Lab Code:	K2407895-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**6950**	mg/Kg	2.1	0.6	5	08/14/24 09:41	08/08/24	
Arsenic	200.8	**1.39**	mg/Kg	0.54	0.06	5	08/14/24 09:41	08/08/24	
Cadmium	200.8	**0.069**	mg/Kg	0.021	0.007	5	08/14/24 09:41	08/08/24	
Chromium	200.8	**12.4**	mg/Kg	0.21	0.06	5	08/14/24 09:41	08/08/24	
Copper	200.8	**50.4**	mg/Kg	0.11	0.04	5	08/14/24 09:41	08/08/24	
Lead	200.8	**1.15**	mg/Kg	0.064	0.025	5	08/28/24 08:07	08/27/24	
Mercury	7471B	**0.007**	**J** mg/Kg	0.024	0.002	1	08/05/24 10:44	08/02/24	
Nickel	200.8	**7.92**	mg/Kg	0.21	0.03	5	08/14/24 09:41	08/08/24	
Selenium	200.8	**0.1**	**J** mg/Kg	1.1	0.10	5	08/14/24 09:41	08/08/24	
Silver	200.8	**0.027**	mg/Kg	0.021	0.004	5	08/14/24 09:41	08/08/24	
Zinc	200.8	**34.9**	mg/Kg	0.54	0.21	5	08/14/24 09:41	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 15:30
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM UJC S3	**Basis:**	Dry
Lab Code:	K2407895-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**7890**	mg/Kg	2.1	0.6	5	08/14/24 09:43	08/08/24	
Arsenic	200.8	**1.18**	mg/Kg	0.53	0.06	5	08/14/24 09:43	08/08/24	
Cadmium	200.8	**0.070**	mg/Kg	0.021	0.007	5	08/14/24 09:43	08/08/24	
Chromium	200.8	**14.0**	mg/Kg	0.21	0.06	5	08/14/24 09:43	08/08/24	
Copper	200.8	**42.1**	mg/Kg	0.11	0.04	5	08/14/24 09:43	08/08/24	
Lead	200.8	**1.18**	mg/Kg	0.055	0.022	5	08/28/24 08:08	08/27/24	
Mercury	7471B	**0.011**	mg/Kg	0.025	0.003	1	08/05/24 10:45	08/02/24	**J**
Nickel	200.8	**9.48**	mg/Kg	0.21	0.03	5	08/14/24 09:43	08/08/24	
Selenium	200.8	ND	mg/Kg	1.1	0.09	5	08/14/24 09:43	08/08/24	U
Silver	200.8	**0.026**	mg/Kg	0.021	0.004	5	08/14/24 09:43	08/08/24	
Zinc	200.8	**36.8**	mg/Kg	0.53	0.21	5	08/14/24 09:43	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 11:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM USH S1	**Basis:**	Dry
Lab Code:	K2407895-004		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**18100**	mg/Kg	2.8	0.8	5	08/14/24 11:02	08/08/24	
Arsenic	200.8	**37.9**	mg/Kg	0.70	0.08	5	08/14/24 11:02	08/08/24	
Cadmium	200.8	**0.113**	mg/Kg	0.028	0.010	5	08/14/24 11:02	08/08/24	
Chromium	200.8	**31.7**	mg/Kg	0.28	0.08	5	08/14/24 11:02	08/08/24	
Copper	200.8	**62.1**	mg/Kg	0.14	0.06	5	08/14/24 11:02	08/08/24	
Lead	200.8	**6.74**	mg/Kg	0.067	0.027	5	08/28/24 08:12	08/27/24	
Mercury	7471B	**0.015 J**	mg/Kg	0.025	0.003	1	08/05/24 10:47	08/02/24	
Nickel	200.8	**31.0**	mg/Kg	0.28	0.04	5	08/14/24 11:02	08/08/24	
Selenium	200.8	**0.2 J**	mg/Kg	1.4	0.1	5	08/14/24 11:02	08/08/24	
Silver	200.8	**0.141**	mg/Kg	0.028	0.006	5	08/14/24 11:02	08/08/24	
Zinc	200.8	**100**	mg/Kg	0.70	0.28	5	08/14/24 11:02	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 11:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM USH S2	**Basis:**	Dry
Lab Code:	K2407895-005		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**21900**	mg/Kg	2.3	0.7	5	08/14/24 11:05	08/08/24	
Arsenic	200.8	**63.1**	mg/Kg	0.58	0.07	5	08/14/24 11:05	08/08/24	
Cadmium	200.8	**0.144**	mg/Kg	0.023	0.008	5	08/14/24 11:05	08/08/24	
Chromium	200.8	**38.0**	mg/Kg	0.23	0.07	5	08/14/24 11:05	08/08/24	
Copper	200.8	**112**	mg/Kg	0.12	0.05	5	08/14/24 11:05	08/08/24	
Lead	200.8	**6.07**	mg/Kg	0.061	0.024	5	08/28/24 08:14	08/27/24	
Mercury	7471B	**0.024**	**J** mg/Kg	0.029	0.003	1	08/05/24 10:49	08/02/24	
Nickel	200.8	**42.1**	mg/Kg	0.23	0.03	5	08/14/24 11:05	08/08/24	
Selenium	200.8	**0.3**	**J** mg/Kg	1.2	0.1	5	08/14/24 11:05	08/08/24	
Silver	200.8	**0.177**	mg/Kg	0.023	0.005	5	08/14/24 11:05	08/08/24	
Zinc	200.8	**121**	mg/Kg	0.58	0.23	5	08/14/24 11:05	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 11:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM USH S3	**Basis:**	Dry
Lab Code:	K2407895-006		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**19500**	mg/Kg	2.5	0.7	5	08/14/24 11:08	08/08/24	
Arsenic	200.8	**46.2**	mg/Kg	0.61	0.07	5	08/14/24 11:08	08/08/24	
Cadmium	200.8	**0.101**	mg/Kg	0.025	0.009	5	08/14/24 11:08	08/08/24	
Chromium	200.8	**33.3**	mg/Kg	0.25	0.07	5	08/14/24 11:08	08/08/24	
Copper	200.8	**66.2**	mg/Kg	0.12	0.05	5	08/14/24 11:08	08/08/24	
Lead	200.8	**8.04**	mg/Kg	0.062	0.025	5	08/28/24 08:15	08/27/24	
Mercury	7471B	**0.022**	**J** mg/Kg	0.028	0.003	1	08/05/24 10:50	08/02/24	
Nickel	200.8	**33.5**	mg/Kg	0.25	0.04	5	08/14/24 11:08	08/08/24	
Selenium	200.8	**0.3**	**J** mg/Kg	1.2	0.1	5	08/14/24 11:08	08/08/24	
Silver	200.8	**0.126**	mg/Kg	0.025	0.005	5	08/14/24 11:08	08/08/24	
Zinc	200.8	**107**	mg/Kg	0.61	0.25	5	08/14/24 11:08	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 14:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMEFSC S1	**Basis:**	Dry
Lab Code:	K2407895-007		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13800**	mg/Kg	2.8	0.8	5	08/14/24 11:10	08/08/24	
Arsenic	200.8	**25.4**	mg/Kg	0.69	0.08	5	08/14/24 11:10	08/08/24	
Cadmium	200.8	**2.28**	mg/Kg	0.028	0.010	5	08/14/24 11:10	08/08/24	
Chromium	200.8	**14.3**	mg/Kg	0.28	0.08	5	08/14/24 11:10	08/08/24	
Copper	200.8	**38.9**	mg/Kg	0.14	0.06	5	08/14/24 11:10	08/08/24	
Lead	200.8	**7.84**	mg/Kg	0.083	0.033	5	08/28/24 08:17	08/27/24	
Mercury	7471B	**0.033**	mg/Kg	0.035	0.003	1	08/05/24 10:52	08/02/24	**J**
Nickel	200.8	**43.2**	mg/Kg	0.28	0.04	5	08/14/24 11:10	08/08/24	
Selenium	200.8	**2.2**	mg/Kg	1.4	0.1	5	08/14/24 11:10	08/08/24	
Silver	200.8	**0.101**	mg/Kg	0.028	0.006	5	08/14/24 11:10	08/08/24	
Zinc	200.8	**283**	mg/Kg	0.69	0.28	5	08/14/24 11:10	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 14:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMEFSC S2	**Basis:**	Dry
Lab Code:	K2407895-008		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10900**	mg/Kg	2.7	0.8	5	08/14/24 11:13	08/08/24	
Arsenic	200.8	**13.0**	mg/Kg	0.67	0.08	5	08/14/24 11:13	08/08/24	
Cadmium	200.8	**1.25**	mg/Kg	0.027	0.009	5	08/14/24 11:13	08/08/24	
Chromium	200.8	**11.6**	mg/Kg	0.27	0.08	5	08/14/24 11:13	08/08/24	
Copper	200.8	**22.1**	mg/Kg	0.13	0.05	5	08/14/24 11:13	08/08/24	
Lead	200.8	**8.41**	mg/Kg	0.062	0.025	5	08/28/24 08:18	08/27/24	
Mercury	7471B	**0.030**	mg/Kg	0.028	0.003	1	08/05/24 10:54	08/02/24	
Nickel	200.8	**21.4**	mg/Kg	0.27	0.04	5	08/14/24 11:13	08/08/24	
Selenium	200.8	**0.8**	mg/Kg	1.3	0.1	5	08/14/24 11:13	08/08/24	**J**
Silver	200.8	**0.130**	mg/Kg	0.027	0.005	5	08/14/24 11:13	08/08/24	
Zinc	200.8	**133**	mg/Kg	0.67	0.27	5	08/14/24 11:13	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 14:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMEFSC S3	**Basis:**	Dry
Lab Code:	K2407895-009		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**11800**	mg/Kg	2.5	0.8	5	08/14/24 11:15	08/08/24	
Arsenic	200.8	**34.8**	mg/Kg	0.63	0.08	5	08/14/24 11:15	08/08/24	
Cadmium	200.8	**6.06**	mg/Kg	0.025	0.009	5	08/14/24 11:15	08/08/24	
Chromium	200.8	**10.2**	mg/Kg	0.25	0.08	5	08/14/24 11:15	08/08/24	
Copper	200.8	**33.6**	mg/Kg	0.13	0.05	5	08/14/24 11:15	08/08/24	
Lead	200.8	**4.04**	mg/Kg	0.050	0.020	5	08/28/24 08:19	08/27/24	
Mercury	7471B	**0.013**	mg/Kg	0.025	0.002	1	08/05/24 10:58	08/02/24	**J**
Nickel	200.8	**56.6**	mg/Kg	0.25	0.04	5	08/14/24 11:15	08/08/24	
Selenium	200.8	**2.3**	mg/Kg	1.3	0.1	5	08/14/24 11:15	08/08/24	
Silver	200.8	**0.078**	mg/Kg	0.025	0.005	5	08/14/24 11:15	08/08/24	
Zinc	200.8	**513**	mg/Kg	0.63	0.25	5	08/14/24 11:15	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 11:50
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM LSC S1	**Basis:**	Dry
Lab Code:	K2407895-010		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**14400**	mg/Kg	2.5	0.8	5	08/14/24 11:18	08/08/24	
Arsenic	200.8	**18.1**	mg/Kg	0.63	0.08	5	08/14/24 11:18	08/08/24	
Cadmium	200.8	**0.740**	mg/Kg	0.025	0.009	5	08/14/24 11:18	08/08/24	
Chromium	200.8	**24.0**	mg/Kg	0.25	0.08	5	08/14/24 11:18	08/08/24	
Copper	200.8	**56.6**	mg/Kg	0.13	0.05	5	08/14/24 11:18	08/08/24	
Lead	200.8	**8.29**	mg/Kg	0.070	0.028	5	08/28/24 08:21	08/27/24	
Mercury	7471B	**0.070**	mg/Kg	0.031	0.003	1	08/05/24 11:00	08/02/24	
Nickel	200.8	**40.8**	mg/Kg	0.25	0.04	5	08/14/24 11:18	08/08/24	
Selenium	200.8	**1.4**	mg/Kg	1.3	0.1	5	08/14/24 11:18	08/08/24	
Silver	200.8	**0.117**	mg/Kg	0.025	0.005	5	08/14/24 11:18	08/08/24	
Zinc	200.8	**173**	mg/Kg	0.63	0.25	5	08/14/24 11:18	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 11:50
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM LSC S2	**Basis:**	Dry
Lab Code:	K2407895-011		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**19400**	mg/Kg	2.3	0.7	5	08/14/24 11:20	08/08/24	
Arsenic	200.8	**17.6**	mg/Kg	0.57	0.07	5	08/14/24 11:20	08/08/24	
Cadmium	200.8	**0.890**	mg/Kg	0.023	0.008	5	08/14/24 11:20	08/08/24	
Chromium	200.8	**22.7**	mg/Kg	0.23	0.07	5	08/14/24 11:20	08/08/24	
Copper	200.8	**52.6**	mg/Kg	0.11	0.05	5	08/14/24 11:20	08/08/24	
Lead	200.8	**8.79**	mg/Kg	0.052	0.021	5	08/28/24 08:03	08/27/24	
Mercury	7471B	**0.061**	mg/Kg	0.027	0.003	1	08/05/24 11:02	08/02/24	
Nickel	200.8	**42.2**	mg/Kg	0.23	0.03	5	08/14/24 11:20	08/08/24	
Selenium	200.8	**1.1**	**J** mg/Kg	1.1	0.1	5	08/14/24 11:20	08/08/24	
Silver	200.8	**0.085**	mg/Kg	0.023	0.005	5	08/14/24 11:20	08/08/24	
Zinc	200.8	**176**	mg/Kg	0.57	0.23	5	08/14/24 11:20	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 11:50
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM LSC S3	**Basis:**	Dry
Lab Code:	K2407895-012		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**12600**	mg/Kg	2.4	0.7	5	08/14/24 11:23	08/08/24	
Arsenic	200.8	**17.2**	mg/Kg	0.60	0.07	5	08/14/24 11:23	08/08/24	
Cadmium	200.8	**0.688**	mg/Kg	0.024	0.008	5	08/14/24 11:23	08/08/24	
Chromium	200.8	**20.8**	mg/Kg	0.24	0.07	5	08/14/24 11:23	08/08/24	
Copper	200.8	**51.0**	mg/Kg	0.12	0.05	5	08/14/24 11:23	08/08/24	
Lead	200.8	**8.38**	mg/Kg	0.072	0.029	5	08/28/24 08:22	08/27/24	
Mercury	7471B	**0.064**	mg/Kg	0.028	0.003	1	08/05/24 11:03	08/02/24	
Nickel	200.8	**36.2**	mg/Kg	0.24	0.04	5	08/14/24 11:23	08/08/24	
Selenium	200.8	**1.4**	mg/Kg	1.2	0.1	5	08/14/24 11:23	08/08/24	
Silver	200.8	**0.098**	mg/Kg	0.024	0.005	5	08/14/24 11:23	08/08/24	
Zinc	200.8	**162**	mg/Kg	0.60	0.24	5	08/14/24 11:23	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 10:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM LSH S1	**Basis:**	Dry
Lab Code:	K2407895-013		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**14100**	mg/Kg	2.2	0.7	5	08/14/24 09:33	08/08/24	
Arsenic	200.8	**38.4**	mg/Kg	0.55	0.07	5	08/14/24 09:33	08/08/24	
Cadmium	200.8	**0.255**	mg/Kg	0.022	0.008	5	08/14/24 09:33	08/08/24	
Chromium	200.8	**36.2**	mg/Kg	0.22	0.07	5	08/14/24 09:33	08/08/24	
Copper	200.8	**72.1**	mg/Kg	0.11	0.04	5	08/14/24 09:33	08/08/24	
Lead	200.8	**4.36**	mg/Kg	0.060	0.024	5	08/28/24 08:23	08/27/24	
Mercury	7471B	**0.297**	mg/Kg	0.025	0.003	1	08/05/24 11:05	08/02/24	
Nickel	200.8	**35.4**	mg/Kg	0.22	0.03	5	08/14/24 09:33	08/08/24	
Selenium	200.8	**1.1**	mg/Kg	1.1	0.10	5	08/14/24 09:33	08/08/24	
Silver	200.8	**0.105**	mg/Kg	0.022	0.004	5	08/14/24 09:33	08/08/24	
Zinc	200.8	**108**	mg/Kg	0.55	0.22	5	08/14/24 09:33	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411923-05		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**0.8 J**	mg/Kg	2.0	0.6	5	08/14/24 09:20	08/08/24	
Arsenic	200.8	ND U	mg/Kg	0.5	0.06	5	08/14/24 09:20	08/08/24	
Cadmium	200.8	ND U	mg/Kg	0.020	0.007	5	08/14/24 09:20	08/08/24	
Chromium	200.8	ND U	mg/Kg	0.20	0.06	5	08/14/24 09:20	08/08/24	
Copper	200.8	ND U	mg/Kg	0.10	0.04	5	08/14/24 09:20	08/08/24	
Nickel	200.8	ND U	mg/Kg	0.20	0.03	5	08/14/24 09:20	08/08/24	
Selenium	200.8	ND U	mg/Kg	1.0	0.09	5	08/14/24 09:20	08/08/24	
Silver	200.8	ND U	mg/Kg	0.020	0.004	5	08/14/24 09:20	08/08/24	
Zinc	200.8	ND U	mg/Kg	0.5	0.20	5	08/14/24 09:20	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2412766-05		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Lead	200.8	ND U	mg/Kg	0.05	0.020	5	08/28/24 07:56	08/27/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411922-03		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7471B	ND U	mg/Kg	0.02	0.002	1	08/05/24 10:31	08/02/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24

Replicate Sample Summary
Total Metals

Sample Name:	2024 KGM UJC S1	**Units:**	mg/Kg
Lab Code:	K2407895-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411923-01 Result	Average	RPD	RPD Limit
Aluminum	200.8	2.4	0.7	6630	7050	6840	6	30
Arsenic	200.8	0.59	0.07	1.11	1.80	1.46	48 #	30
Cadmium	200.8	0.024	0.008	0.067	0.069	0.068	2	30
Chromium	200.8	0.24	0.07	11.5	18.5	15.0	47 *	30
Copper	200.8	0.12	0.05	35.4	42.3	38.9	18	30
Nickel	200.8	0.24	0.04	8.49	11.3	9.90	28	30
Selenium	200.8	1.2	0.1	ND U	0.2 J	NC	NC	30
Silver	200.8	0.024	0.005	0.022 J	0.023 J	0.023	6	30
Zinc	200.8	0.59	0.24	27.0	30.2	28.6	11	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24

Replicate Sample Summary

Total Metals

Sample Name:	2024 KGM LSH S1	**Units:**	mg/Kg
Lab Code:	K2407895-013	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411923-03 Result	Average	RPD	RPD Limit
Aluminum	200.8	2.2	0.7	14100	13600	13900	4	30
Arsenic	200.8	0.56	0.07	38.4	22.3	30.4	53 *	30
Cadmium	200.8	0.022	0.008	0.255	0.216	0.236	17	30
Chromium	200.8	0.22	0.07	36.2	34.7	35.5	4	30
Copper	200.8	0.11	0.04	72.1	61.6	66.9	15	30
Nickel	200.8	0.22	0.03	35.4	30.1	32.8	16	30
Selenium	200.8	1.1	0.1	1.1	0.8 J	1.0	34 #	30
Silver	200.8	0.022	0.004	0.105	0.100	0.103	4	30
Zinc	200.8	0.56	0.22	108	94.8	101	13	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/28/24

Replicate Sample Summary
Total Metals

Sample Name:	2024 KGM UJC S1	**Units:**	mg/Kg
Lab Code:	K2407895-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2412766-01 Result	Average	RPD	RPD Limit
Lead	200.8	0.052	0.021	1.30	1.37	1.34	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/28/24

Replicate Sample Summary

Total Metals

Sample Name:	2024 KGM LSC S2	**Units:**	mg/Kg
Lab Code:	K2407895-011	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2412766-03 Result	Average	RPD	RPD Limit
Lead	200.8	0.054	0.022	8.79	9.10	8.95	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/05/24

Replicate Sample Summary
Total Metals

Sample Name:	2024 KGM UJC S1	**Units:**	mg/Kg
Lab Code:	K2407895-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411922-01 Result	Average	RPD	RPD Limit
Mercury	7471B	0.024	0.002	0.010 J	0.011 J	0.011	12	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24
		Date Extracted:	08/8/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGM UJC S1	**Units:**	mg/Kg
Lab Code:	K2407895-001	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2411923-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	6630	7900	469	270 #	70-130
Arsenic	1.11	125	117	105	70-130
Cadmium	0.067	12.8	11.7	109	70-130
Chromium	11.5	73.9	46.9	133 N	70-130
Copper	35.4	104	58.7	117	70-130
Nickel	8.49	138	117	111	70-130
Selenium	ND U	120	117	102	70-130
Silver	0.022 J	12.0	11.7	102	70-130
Zinc	27.0	156	117	110	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24
		Date Extracted:	08/8/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGM LSH S1	**Units:**	mg/Kg
Lab Code:	K2407895-013	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2411923-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	14100	18600	437	1015 #	70-130
Arsenic	38.4	141	109	94	70-130
Cadmium	0.255	11.9	10.9	106	70-130
Chromium	36.2	85.7	43.7	113	70-130
Copper	72.1	118	54.6	83	70-130
Nickel	35.4	150	109	105	70-130
Selenium	1.1	111	109	101	70-130
Silver	0.105	10.7	10.9	97	70-130
Zinc	108	230	109	112	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/28/24
		Date Extracted:	08/27/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGM UJC S1	**Units:**	mg/Kg
Lab Code:	K2407895-001	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2412766-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Lead	1.30	110	105	104	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/28/24
		Date Extracted:	08/27/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGM LSC S2	**Units:**	mg/Kg
Lab Code:	K2407895-011	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2412766-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Lead	8.79	118	106	104	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/5/24
		Date Extracted:	08/2/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGM UJC S1	**Units:**	mg/Kg
Lab Code:	K2407895-001	**Basis:**	Dry
Analysis Method:	7471B		
Prep Method:	Method		

Matrix Spike
KQ2411922-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Mercury	0.010 J	0.583	0.598	96	80-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Alaska Department of Fish and Game
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Service Request: K2407895
Date Analyzed: 08/14/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411923-06

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	200.8	427	400	107	85-115
Arsenic	200.8	104	100	104	85-115
Cadmium	200.8	10.7	10.0	107	85-115
Chromium	200.8	43.3	40.0	108	85-115
Copper	200.8	51.7	50.0	103	85-115
Nickel	200.8	106	100	106	85-115
Selenium	200.8	104	100	104	85-115
Silver	200.8	10.5	10.0	105	85-115
Zinc	200.8	102	100	102	85-115

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407895
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/28/24
Sample Matrix:	Soil		

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2412766-06

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Lead	200.8	99.4	100	99	85-115

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Alaska Department of Fish and Game
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Service Request: K2407895
Date Analyzed: 08/05/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411922-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7471B	0.474	0.500	95	80-120

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Metals

Prep Method: EPA 3050B **Extraction Lot:** 442535
Analytical Method: 200.8 **Extraction Date:** 08/08/24 09:32

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024 KGM UJC S1	K2407895-001	7/22/24	7/31/24	1.012 g	100 mL	
2024 KGM UJC S2	K2407895-002	7/22/24	7/31/24	1.356 g	100 mL	
2024 KGM UJC S3	K2407895-003	7/22/24	7/31/24	1.315 g	100 mL	
2024 KGM USH S1	K2407895-004	7/22/24	7/31/24	1.031 g	100 mL	
2024 KGM USH S2	K2407895-005	7/22/24	7/31/24	1.385 g	100 mL	
2024 KGM USH S3	K2407895-006	7/22/24	7/31/24	1.214 g	100 mL	
2024 KGMEFSC S1	K2407895-007	7/22/24	7/31/24	1.267 g	100 mL	
2024 KGMEFSC S2	K2407895-008	7/22/24	7/31/24	1.104 g	100 mL	
2024 KGMEFSC S3	K2407895-009	7/22/24	7/31/24	1.126 g	100 mL	
2024 KGM LSC S1	K2407895-010	7/23/24	7/31/24	1.264 g	100 mL	
2024 KGM LSC S2	K2407895-011	7/23/24	7/31/24	1.361 g	100 mL	
2024 KGM LSC S3	K2407895-012	7/23/24	7/31/24	1.256 g	100 mL	
2024 KGM LSH S1	K2407895-013	7/22/24	7/31/24	1.197 g	100 mL	
Duplicate	KQ2411923-01DUP	7/22/24	7/31/24	1.059 g	100 mL	
Matrix Spike	KQ2411923-02MS	7/22/24	7/31/24	1.062 g	100 mL	
Duplicate	KQ2411923-03DUP	7/22/24	7/31/24	1.164 g	100 mL	
Matrix Spike	KQ2411923-04MS	7/22/24	7/31/24	1.197 g	100 mL	
Method Blank	KQ2411923-05MB	NA	NA	1.0000 g	100 mL	
Lab Control Sample	KQ2411923-06LCS	NA	NA	1.0000 g	100 mL	

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Metals

Prep Method: EPA 3050B **Extraction Lot:** 443310
Analytical Method: 200.8 **Extraction Date:** 08/27/24 10:07

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024 KGM UJC S1	K2407895-001	7/22/24	7/31/24	1.151 g	100 mL	
2024 KGM UJC S2	K2407895-002	7/22/24	7/31/24	1.140 g	100 mL	
2024 KGM UJC S3	K2407895-003	7/22/24	7/31/24	1.257 g	100 mL	
2024 KGM USH S1	K2407895-004	7/22/24	7/31/24	1.069 g	100 mL	
2024 KGM USH S2	K2407895-005	7/22/24	7/31/24	1.323 g	100 mL	
2024 KGM USH S3	K2407895-006	7/22/24	7/31/24	1.209 g	100 mL	
2024 KGMEFSC S1	K2407895-007	7/22/24	7/31/24	1.059 g	100 mL	
2024 KGMEFSC S2	K2407895-008	7/22/24	7/31/24	1.199 g	100 mL	
2024 KGMEFSC S3	K2407895-009	7/22/24	7/31/24	1.400 g	100 mL	
2024 KGM LSC S1	K2407895-010	7/23/24	7/31/24	1.145 g	100 mL	
2024 KGM LSC S2	K2407895-011	7/23/24	7/31/24	1.479 g	100 mL	
2024 KGM LSC S3	K2407895-012	7/23/24	7/31/24	1.035 g	100 mL	
2024 KGM LSH S1	K2407895-013	7/22/24	7/31/24	1.097 g	100 mL	
Duplicate	KQ2412766-01DUP	7/22/24	7/31/24	1.187 g	100 mL	
Matrix Spike	KQ2412766-02MS	7/22/24	7/31/24	1.186 g	100 mL	
Duplicate	KQ2412766-03DUP	7/23/24	7/31/24	1.432 g	100 mL	
Matrix Spike	KQ2412766-04MS	7/23/24	7/31/24	1.467 g	100 mL	
Method Blank	KQ2412766-05MB	NA	NA	1 g	100 mL	
Lab Control Sample	KQ2412766-06LCS	NA	NA	1 g	100 mL	

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Metals

Prep Method: Method **Extraction Lot:** 442534
Analytical Method: 7471B **Extraction Date:** 08/02/24 13:00

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024 KGM UJC S1	K2407895-001	7/22/24	7/31/24	0.557 g	50 mL	
2024 KGM UJC S2	K2407895-002	7/22/24	7/31/24	0.593 g	50 mL	
2024 KGM UJC S3	K2407895-003	7/22/24	7/31/24	0.544 g	50 mL	
2024 KGM USH S1	K2407895-004	7/22/24	7/31/24	0.569 g	50 mL	
2024 KGM USH S2	K2407895-005	7/22/24	7/31/24	0.555 g	50 mL	
2024 KGM USH S3	K2407895-006	7/22/24	7/31/24	0.528 g	50 mL	
2024 KGMEFSC S1	K2407895-007	7/22/24	7/31/24	0.503 g	50 mL	
2024 KGMEFSC S2	K2407895-008	7/22/24	7/31/24	0.536 g	50 mL	
2024 KGMEFSC S3	K2407895-009	7/22/24	7/31/24	0.567 g	50 mL	
2024 KGM LSC S1	K2407895-010	7/23/24	7/31/24	0.515 g	50 mL	
2024 KGM LSC S2	K2407895-011	7/23/24	7/31/24	0.565 g	50 mL	
2024 KGM LSC S3	K2407895-012	7/23/24	7/31/24	0.544 g	50 mL	
2024 KGM LSH S1	K2407895-013	7/22/24	7/31/24	0.517 g	50 mL	
Duplicate	KQ2411922-01DUP	7/22/24	7/31/24	0.521 g	50 mL	
Matrix Spike	KQ2411922-02MS	7/22/24	7/31/24	0.521 g	50 mL	
Method Blank	KQ2411922-03MB	NA	NA	0.5 g	50 mL	
Lab Control Sample	KQ2411922-04LCS	NA	NA	0.5 g	50 mL	

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 08/05/24 09:05						
Mercury	7471B	849608	4.84	5.00	97	90-110
CCV 08/05/24 09:10						
Mercury	7471B	849608	4.99	5.00	100	90-110
CCV 08/05/24 09:31						
Mercury	7471B	849608	4.87	5.00	97	90-110
CCV 08/05/24 09:53						
Mercury	7471B	849608	4.86	5.00	97	90-110
CCV 08/05/24 10:15						
Mercury	7471B	849608	4.90	5.00	98	90-110
CCV 08/05/24 10:36						
Mercury	7471B	849608	4.92	5.00	98	90-110
CCV 08/05/24 10:55						
Mercury	7471B	849608	4.86	5.00	97	90-110
CCV 08/05/24 11:06						
Mercury	7471B	849608	4.90	5.00	98	90-110
ICV 08/14/24 08:13						
Aluminum	200.8	850554	106	100	106	90-110
Arsenic	200.8	850554	25.3	25.0	101	90-110
Cadmium	200.8	850554	13.4	12.5	107	90-110
Chromium	200.8	850554	10.2	10.0	102	90-110
Copper	200.8	850554	13.0	12.5	104	90-110
Nickel	200.8	850554	26.1	25.0	105	90-110
Selenium	200.8	850554	24.7	25.0	99	90-110
Silver	200.8	850554	12.8	12.5	103	90-110
Zinc	200.8	850554	25.9	25.0	104	90-110
CCV 08/14/24 08:15						
Aluminum	200.8	850554	256	250	103	90-110
Arsenic	200.8	850554	24.6	25.0	98	90-110
Cadmium	200.8	850554	25.1	25.0	100	90-110
Chromium	200.8	850554	25.3	25.0	101	90-110
Copper	200.8	850554	25.1	25.0	101	90-110
Nickel	200.8	850554	25.0	25.0	100	90-110
Selenium	200.8	850554	24.6	25.0	98	90-110
Silver	200.8	850554	12.4	12.5	100	90-110
Zinc	200.8	850554	25.1	25.0	100	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/14/24 08:44						
Aluminum	200.8	850554	258	250	103	90-110
Arsenic	200.8	850554	24.6	25.0	99	90-110
Cadmium	200.8	850554	25.0	25.0	100	90-110
Chromium	200.8	850554	25.3	25.0	101	90-110
Copper	200.8	850554	24.9	25.0	99	90-110
Nickel	200.8	850554	25.0	25.0	100	90-110
Selenium	200.8	850554	24.6	25.0	98	90-110
Silver	200.8	850554	12.5	12.5	100	90-110
Zinc	200.8	850554	25.1	25.0	100	90-110
CCV 08/14/24 09:15						
Aluminum	200.8	850554	258	250	103	90-110
Arsenic	200.8	850554	24.8	25.0	99	90-110
Cadmium	200.8	850554	24.9	25.0	100	90-110
Chromium	200.8	850554	25.7	25.0	103	90-110
Copper	200.8	850554	25.0	25.0	100	90-110
Nickel	200.8	850554	24.8	25.0	99	90-110
Selenium	200.8	850554	24.7	25.0	99	90-110
Silver	200.8	850554	12.4	12.5	99	90-110
Zinc	200.8	850554	24.8	25.0	99	90-110
CCV 08/14/24 09:46						
Aluminum	200.8	850554	269	250	107	90-110
Arsenic	200.8	850554	24.9	25.0	99	90-110
Cadmium	200.8	850554	24.9	25.0	100	90-110
Chromium	200.8	850554	25.7	25.0	103	90-110
Copper	200.8	850554	25.2	25.0	101	90-110
Nickel	200.8	850554	25.4	25.0	102	90-110
Selenium	200.8	850554	24.8	25.0	99	90-110
Silver	200.8	850554	12.4	12.5	100	90-110
Zinc	200.8	850554	25.3	25.0	101	90-110
CCV 08/14/24 10:54						
Aluminum	200.8	850554	254	250	102	90-110
Arsenic	200.8	850554	24.3	25.0	97	90-110
Cadmium	200.8	850554	24.6	25.0	98	90-110
Chromium	200.8	850554	25.0	25.0	100	90-110
Copper	200.8	850554	24.8	25.0	99	90-110
Nickel	200.8	850554	24.9	25.0	100	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/14/24 10:54						
Selenium	200.8	850554	24.1	25.0	97	90-110
Silver	200.8	850554	12.4	12.5	99	90-110
Zinc	200.8	850554	24.8	25.0	99	90-110
CCV 08/14/24 11:26						
Aluminum	200.8	850554	266	250	106	90-110
Arsenic	200.8	850554	24.9	25.0	100	90-110
Cadmium	200.8	850554	24.4	25.0	98	90-110
Chromium	200.8	850554	25.5	25.0	102	90-110
Copper	200.8	850554	25.0	25.0	100	90-110
Nickel	200.8	850554	25.2	25.0	101	90-110
Selenium	200.8	850554	24.4	25.0	98	90-110
Silver	200.8	850554	12.2	12.5	98	90-110
Zinc	200.8	850554	25.3	25.0	101	90-110
ICV 08/28/24 07:37						
Lead	200.8	852188	25.2	25.0	101	90-110
CCV 08/28/24 07:38						
Lead	200.8	852188	25.2	25.0	101	90-110
CCV 08/28/24 08:10						
Lead	200.8	852188	26.1	25.0	104	90-110
CCV 08/28/24 08:25						
Lead	200.8	852188	25.4	25.0	101	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
ICB 08/05/24 09:07				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 09:12				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 09:33				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 09:55				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 10:17				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 10:37				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 10:57				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 11:08				
Mercury	7471B	849608	0.02	U
ICB 08/14/24 08:18				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 08:21				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 08/14/24 08:52				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 09:18				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 10:39				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 10:57				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Nickel	200.8	850554	0.06	U

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 08/14/24 10:57				
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 11:28				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
ICB 08/28/24 07:40				
Lead	200.8	852188	0.04	U
CCB 08/28/24 07:41				
Lead	200.8	852188	0.04	U
CCB 08/28/24 08:11				
Lead	200.8	852188	0.04	U
CCB 08/28/24 08:26				
Lead	200.8	852188	0.04	U

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV							
Mercury	7471B	849608	0.20	0.2	98	50-150	08/05/24 09:08
LLICVS							
Aluminum	200.8	850554	4.6	4.0	114	50-199	08/14/24 08:23
Arsenic	200.8	850554	0.48	0.5	96	50-199	08/14/24 08:23
Cadmium	200.8	850554	0.045	0.04	112	50-199	08/14/24 08:23
Chromium	200.8	850554	0.43	0.4	107	50-199	08/14/24 08:23
Copper	200.8	850554	0.21	0.2	106	50-199	08/14/24 08:23
Nickel	200.8	850554	0.44	0.4	110	50-199	08/14/24 08:23
Selenium	200.8	850554	0.99	1.0	99	50-199	08/14/24 08:23
Silver	200.8	850554	0.043	0.04	107	50-199	08/14/24 08:23
Zinc	200.8	850554	1.1	1.0	114	50-199	08/14/24 08:23
LLICVS							
Lead	200.8	852188	0.096	0.1	96	50-199	08/28/24 07:42

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring

POST SPIKE SAMPLE RECOVERY

Concentration Units: ug/L

Sample ID Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2407895-001A								
Mercury	7471B	849608	0.09 J	5.09	5.00	100	80-120	08/05/24 10:42

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Detection Limits

Instrument: K-CVAA-04 **Matrix:** Soil

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Mercury	253	ug/L	0.2	0.02	7471B

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Detection Limits

Instrument: K-ICP-MS-05 **Matrix:** Soil

Analyte	Mass	Units	MRL	MDL	Method
Aluminum	27	ug/L	4	1.2	200.8
Arsenic	75	ug/L	1	0.12	200.8
Cadmium	111	ug/L	0.04	0.014	200.8
Chromium	52	ug/L	0.4	0.12	200.8
Copper	65	ug/L	0.2	0.08	200.8
Lead	208	ug/L	0.1	0.04	200.8
Nickel	60	ug/L	0.4	0.06	200.8
Selenium	78	ug/L	2	0.18	200.8
Silver	107	ug/L	0.04	0.008	200.8
Zinc	66	ug/L	1	0.4	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-05

Analyte	Concentration (ug/L)	Method
Aluminum 27	45000	200.8
Arsenic 75	3600	200.8
Cadmium 111	3600	200.8
Chromium 52	3600	200.8
Copper 65	3600	200.8
Lead 208	3600	200.8
Nickel 60	3600	200.8
Selenium 78	3600	200.8
Silver 107	180	200.8
Zinc 66	3600	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **849608**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	08/05/24 08:55	
ZZZZZZ	1	08/05/24 08:57	
ZZZZZZ	1	08/05/24 08:59	
ZZZZZZ	1	08/05/24 09:00	
ZZZZZZ	1	08/05/24 09:02	
ZZZZZZ	1	08/05/24 09:04	
ICV1	1	08/05/24 09:05	X
ICB1	1	08/05/24 09:07	X
LLICV1	1	08/05/24 09:08	X
CCV1	1	08/05/24 09:10	X
CCB1	1	08/05/24 09:12	X
ZZZZZZ	1	08/05/24 09:14	
ZZZZZZ	1	08/05/24 09:15	
ZZZZZZ	1	08/05/24 09:17	
ZZZZZZ	1	08/05/24 09:19	
ZZZZZZ	1	08/05/24 09:20	
ZZZZZZ	1	08/05/24 09:23	
ZZZZZZ	1	08/05/24 09:24	
ZZZZZZ	1	08/05/24 09:26	
ZZZZZZ	1	08/05/24 09:28	
ZZZZZZ	1	08/05/24 09:29	
CCV2	1	08/05/24 09:31	X
CCB2	1	08/05/24 09:33	X
ZZZZZZ	1	08/05/24 09:37	
ZZZZZZ	1	08/05/24 09:39	
ZZZZZZ	1	08/05/24 09:40	
ZZZZZZ	1	08/05/24 09:42	
ZZZZZZ	1	08/05/24 09:44	
ZZZZZZ	1	08/05/24 09:45	
ZZZZZZ	1	08/05/24 09:47	
ZZZZZZ	1	08/05/24 09:48	
ZZZZZZ	1	08/05/24 09:50	
ZZZZZZ	1	08/05/24 09:52	
CCV3	1	08/05/24 09:53	X
CCB3	1	08/05/24 09:55	X
ZZZZZZ	1	08/05/24 09:57	
ZZZZZZ	1	08/05/24 09:58	

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **849608**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	08/05/24 10:00	
ZZZZZZ	1	08/05/24 10:04	
ZZZZZZ	1	08/05/24 10:05	
ZZZZZZ	1	08/05/24 10:07	
ZZZZZZ	1	08/05/24 10:09	
ZZZZZZ	1	08/05/24 10:10	
ZZZZZZ	1	08/05/24 10:12	
ZZZZZZ	1	08/05/24 10:13	
CCV4	1	08/05/24 10:15	X
CCB4	1	08/05/24 10:17	X
ZZZZZZ	1	08/05/24 10:18	
ZZZZZZ	1	08/05/24 10:20	
ZZZZZZ	1	08/05/24 10:22	
ZZZZZZ	1	08/05/24 10:23	
ZZZZZZ	1	08/05/24 10:25	
ZZZZZZ	1	08/05/24 10:28	
ZZZZZZ	1	08/05/24 10:29	
KQ2411922-03MB	1	08/05/24 10:31	X
KQ2411922-04LCS	1	08/05/24 10:32	X
K2407895-001	1	08/05/24 10:34	X
CCV5	1	08/05/24 10:36	X
CCB5	1	08/05/24 10:37	X
K2407895-001DUP	1	08/05/24 10:39	X
K2407895-001MS	1	08/05/24 10:41	X
K2407895-001PS	1	08/05/24 10:42	X
K2407895-002	1	08/05/24 10:44	X
K2407895-003	1	08/05/24 10:45	X
K2407895-004	1	08/05/24 10:47	X
K2407895-005	1	08/05/24 10:49	X
K2407895-006	1	08/05/24 10:50	X
K2407895-007	1	08/05/24 10:52	X
K2407895-008	1	08/05/24 10:54	X
CCV6	1	08/05/24 10:55	X
CCB6	1	08/05/24 10:57	X
K2407895-009	1	08/05/24 10:58	X
K2407895-010	1	08/05/24 11:00	X
K2407895-011	1	08/05/24 11:02	X

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **849608**

Sample	Dilution Factor	Date/Time	Hg
K2407895-012	1	08/05/24 11:03	X
K2407895-013	1	08/05/24 11:05	X
CCV7	1	08/05/24 11:06	X
CCB7	1	08/05/24 11:08	X

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Ni	Se	Ag	Zn
ZZZZZZ	1	08/14/24 08:06									
ZZZZZZ	1	08/14/24 08:08									
ICV	1	08/14/24 08:13	X	X	X	X	X	X	X	X	X
CCV	1	08/14/24 08:15	X	X	X	X	X	X	X	X	X
ICB	1	08/14/24 08:18	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 08:21	X	X	X	X	X	X	X	X	X
LLICVS	1	08/14/24 08:23	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	08/14/24 08:26									
ZZZZZZ	5	08/14/24 08:30									
ZZZZZZ	20	08/14/24 08:33									
ZZZZZZ	5	08/14/24 08:35									
ZZZZZZ	5	08/14/24 08:38									
ZZZZZZ	5	08/14/24 08:40									
CCV	1	08/14/24 08:44	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 08:52	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 08:54									
ZZZZZZ	20	08/14/24 08:57									
ZZZZZZ	5	08/14/24 08:59									
ZZZZZZ	5	08/14/24 09:02									
ZZZZZZ	5	08/14/24 09:04									
ZZZZZZ	5	08/14/24 09:07									
ZZZZZZ	5	08/14/24 09:10									
CCV	1	08/14/24 09:15	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 09:18	X	X	X	X	X	X	X	X	X
KQ2411923-05MB	5	08/14/24 09:20	X	X	X	X	X	X	X	X	X
KQ2411923-06LCS	20	08/14/24 09:23	X	X	X	X	X	X	X	X	X
K2407895-001	5	08/14/24 09:25	X	X	X	X	X	X	X	X	X
K2407895-001DUP	5	08/14/24 09:28	X	X	X	X	X	X	X	X	X
K2407895-001MS	5	08/14/24 09:31	X	X	X	X	X	X	X	X	X
K2407895-013	5	08/14/24 09:33	X	X	X	X	X	X	X	X	X
K2407895-013DUP	5	08/14/24 09:36	X	X	X	X	X	X	X	X	X
K2407895-013MS	5	08/14/24 09:38	X	X	X	X	X	X	X	X	X
K2407895-002	5	08/14/24 09:41	X	X	X	X	X	X	X	X	X
K2407895-003	5	08/14/24 09:43	X	X	X	X	X	X	X	X	X
CCV	1	08/14/24 09:46	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	08/14/24 09:48									
ZZZZZZ	1	08/14/24 10:35									

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Ni	Se	Ag	Zn
CCB	1	08/14/24 10:39	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 10:42									
KQ2411923-06LCS	20	08/14/24 10:44	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 10:47									
ZZZZZZ	5	08/14/24 10:49									
CCV	1	08/14/24 10:54	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 10:57	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 11:00									
K2407895-004	5	08/14/24 11:02	X	X	X	X	X	X	X	X	X
K2407895-005	5	08/14/24 11:05	X	X	X	X	X	X	X	X	X
K2407895-006	5	08/14/24 11:08	X	X	X	X	X	X	X	X	X
K2407895-007	5	08/14/24 11:10	X	X	X	X	X	X	X	X	X
K2407895-008	5	08/14/24 11:13	X	X	X	X	X	X	X	X	X
K2407895-009	5	08/14/24 11:15	X	X	X	X	X	X	X	X	X
K2407895-010	5	08/14/24 11:18	X	X	X	X	X	X	X	X	X
K2407895-011	5	08/14/24 11:20	X	X	X	X	X	X	X	X	X
K2407895-012	5	08/14/24 11:23	X	X	X	X	X	X	X	X	X
CCV	1	08/14/24 11:26	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 11:28	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 11:31									
ZZZZZZ	20	08/14/24 11:33									
ZZZZZZ	5	08/14/24 11:36									
ZZZZZZ	5	08/14/24 11:38									
ZZZZZZ	5	08/14/24 11:41									
ZZZZZZ	5	08/14/24 11:44									
ZZZZZZ	5	08/14/24 11:46									
ZZZZZZ	5	08/14/24 11:49									
ZZZZZZ	5	08/14/24 11:51									
ZZZZZZ	5	08/14/24 11:54									
ZZZZZZ	1	08/14/24 11:57									
ZZZZZZ	1	08/14/24 11:59									
ZZZZZZ	5	08/14/24 12:06									
ZZZZZZ	5	08/14/24 12:09									
ZZZZZZ	5	08/14/24 12:11									
ZZZZZZ	5	08/14/24 12:14									
ZZZZZZ	5	08/14/24 12:17									
ZZZZZZ	5	08/14/24 12:19									

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **852188**

Sample	Dilution Factor	Date/Time	Pb
ZZZZZZ	1	08/28/24 07:34	
ZZZZZZ	1	08/28/24 07:35	
ICV	1	08/28/24 07:37	X
CCV	1	08/28/24 07:38	X
ICB	1	08/28/24 07:40	X
CCB	1	08/28/24 07:41	X
LLICVS	1	08/28/24 07:42	X
KQ2412766-05MB	5	08/28/24 07:56	X
KQ2412766-06LCS	20	08/28/24 07:57	X
K2407895-001	5	08/28/24 07:59	X
K2407895-001DUP	5	08/28/24 08:00	X
K2407895-001MS	5	08/28/24 08:01	X
K2407895-011	5	08/28/24 08:03	X
K2407895-011DUP	5	08/28/24 08:04	X
K2407895-011MS	5	08/28/24 08:05	X
K2407895-002	5	08/28/24 08:07	X
K2407895-003	5	08/28/24 08:08	X
CCV	1	08/28/24 08:10	X
CCB	1	08/28/24 08:11	X
K2407895-004	5	08/28/24 08:12	X
K2407895-005	5	08/28/24 08:14	X
K2407895-006	5	08/28/24 08:15	X
K2407895-007	5	08/28/24 08:17	X
K2407895-008	5	08/28/24 08:18	X
K2407895-009	5	08/28/24 08:19	X
K2407895-010	5	08/28/24 08:21	X
K2407895-012	5	08/28/24 08:22	X
K2407895-013	5	08/28/24 08:23	X
CCV	1	08/28/24 08:25	X
CCB	1	08/28/24 08:26	X

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Date/Time	Sc45NG	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	08/14/24 08:06					
ZZZZZZ	08/14/24 08:08					
ICV	08/14/24 08:13	98	100	99	101	98
CCV	08/14/24 08:15	99	103	102	103	102
ICB	08/14/24 08:18	97	100	98	99	99
CCB	08/14/24 08:21	98	73	87	87	88
LLICVS	08/14/24 08:23	97	101	97	100	98
ZZZZZZ	08/14/24 08:26					
ZZZZZZ	08/14/24 08:30					
ZZZZZZ	08/14/24 08:33					
ZZZZZZ	08/14/24 08:35					
ZZZZZZ	08/14/24 08:38					
ZZZZZZ	08/14/24 08:40					
CCV	08/14/24 08:44	90	99	98	97	94
CCB	08/14/24 08:52	95	99	98	97	94
ZZZZZZ	08/14/24 08:54					
ZZZZZZ	08/14/24 08:57					
ZZZZZZ	08/14/24 08:59					
ZZZZZZ	08/14/24 09:02					
ZZZZZZ	08/14/24 09:04					
ZZZZZZ	08/14/24 09:07					
ZZZZZZ	08/14/24 09:10					
CCV	08/14/24 09:15	95	100	98	98	95
CCB	08/14/24 09:18	96	100	97	97	94
KQ2411923-05MB	08/14/24 09:20	80	77	98	99	96
KQ2411923-06LCS	08/14/24 09:23	98	101	100	99	95
K2407895-001	08/14/24 09:25	100	102	98	98	98
K2407895-001DUP	08/14/24 09:28	103	100	97	98	97
K2407895-001MS	08/14/24 09:31	100	98	94	93	94
K2407895-013	08/14/24 09:33	99	95	94	95	94
K2407895-013DUP	08/14/24 09:36	98	96	93	94	96
K2407895-013MS	08/14/24 09:38	100	95	92	93	92
K2407895-002	08/14/24 09:41	97	95	94	95	93
K2407895-003	08/14/24 09:43	100	98	96	97	96
CCV	08/14/24 09:46	98	97	94	95	93
ZZZZZZ	08/14/24 09:48					
ZZZZZZ	08/14/24 10:35					

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Date/Time	Sc45NG	Ge72H2	Ge72He	In115He	Lu175He
CCB	08/14/24 10:39	100	103	100	100	97
ZZZZZZ	08/14/24 10:42					
ZZZZZZ	08/14/24 10:44					
ZZZZZZ	08/14/24 10:47					
ZZZZZZ	08/14/24 10:49					
CCV	08/14/24 10:54	100	88	90	89	88
CCB	08/14/24 10:57	96	100	96	96	96
ZZZZZZ	08/14/24 11:00					
K2407895-004	08/14/24 11:02	101	103	99	100	98
K2407895-005	08/14/24 11:05	105	97	98	98	97
K2407895-006	08/14/24 11:08	103	99	97	98	97
K2407895-007	08/14/24 11:10	104	96	97	99	97
K2407895-008	08/14/24 11:13	101	98	98	100	98
K2407895-009	08/14/24 11:15	104	97	99	102	98
K2407895-010	08/14/24 11:18	108	101	99	100	97
K2407895-011	08/14/24 11:20	82	99	98	97	98
K2407895-012	08/14/24 11:23	105	99	98	100	98
CCV	08/14/24 11:26	101	100	98	99	97
CCB	08/14/24 11:28	97	97	95	97	93
ZZZZZZ	08/14/24 11:31					
ZZZZZZ	08/14/24 11:33					
ZZZZZZ	08/14/24 11:36					
ZZZZZZ	08/14/24 11:38					
ZZZZZZ	08/14/24 11:41					
ZZZZZZ	08/14/24 11:44					
ZZZZZZ	08/14/24 11:46					
ZZZZZZ	08/14/24 11:49					
ZZZZZZ	08/14/24 11:51					
ZZZZZZ	08/14/24 11:54					
ZZZZZZ	08/14/24 11:57					
ZZZZZZ	08/14/24 11:59					
ZZZZZZ	08/14/24 12:06					
ZZZZZZ	08/14/24 12:09					
ZZZZZZ	08/14/24 12:11					
ZZZZZZ	08/14/24 12:14					
ZZZZZZ	08/14/24 12:17					
ZZZZZZ	08/14/24 12:19					

Client: Alaska Department of Fish and Game **Service Request:** K2407895
Project: Coeur AK Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **852188**

Sample	Date/Time	Lu175He
ZZZZZZ	08/28/24 07:34	
ZZZZZZ	08/28/24 07:35	
ICV	08/28/24 07:37	102
CCV	08/28/24 07:38	99
ICB	08/28/24 07:40	100
CCB	08/28/24 07:41	98
LLICVS	08/28/24 07:42	100
KQ2412766-05MB	08/28/24 07:56	101
KQ2412766-06LCS	08/28/24 07:57	100
K2407895-001	08/28/24 07:59	103
K2407895-001DUP	08/28/24 08:00	103
K2407895-001MS	08/28/24 08:01	100
K2407895-011	08/28/24 08:03	101
K2407895-011DUP	08/28/24 08:04	99
K2407895-011MS	08/28/24 08:05	99
K2407895-002	08/28/24 08:07	98
K2407895-003	08/28/24 08:08	97
CCV	08/28/24 08:10	83
CCB	08/28/24 08:11	98
K2407895-004	08/28/24 08:12	102
K2407895-005	08/28/24 08:14	102
K2407895-006	08/28/24 08:15	100
K2407895-007	08/28/24 08:17	99
K2407895-008	08/28/24 08:18	100
K2407895-009	08/28/24 08:19	99
K2407895-010	08/28/24 08:21	101
K2407895-012	08/28/24 08:22	101
K2407895-013	08/28/24 08:23	100
CCV	08/28/24 08:25	98
CCB	08/28/24 08:26	98

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com

Benchsheet

Service Request #:	**K2407895, KQ2411908**	**Run #:**	**849357**
Test:	**TS**	**Balance ID:**	**K-BALANCE-55**
Method:	**160.3 Modified**		

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Soil	K2407895-001	1.248	13.542	12.126	10.9	80.3	
Soil	K2407895-001DUP	1.239	13.505	11.933	10.7	79.2	1
Soil	K2407895-002	1.242	10.535	8.496	7.25	68.9	
Soil	K2407895-003	1.264	11.049	9.251	7.99	72.3	
Soil	K2407895-004	1.251	11.409	9.196	7.95	69.6	
Soil	K2407895-005	1.270	10.875	8.004	6.73	61.9	
Soil	K2407895-006	1.251	11.692	9.113	7.86	67.2	
Soil	K2407895-007	1.249	10.205	7.063	5.81	57.0	
Soil	K2407895-008	1.258	11.035	8.680	7.42	67.3	
Soil	K2407895-009	1.248	11.342	9.275	8.03	70.8	
Soil	K2407895-010	1.255	10.834	8.046	6.79	62.7	
Soil	K2407895-011	1.247	10.397	7.964	6.72	64.6	
Soil	K2407895-012	1.254	11.238	8.749	7.50	66.7	
Soil	K2407895-013	1.255	11.251	9.860	8.61	76.5	
Soil	K2407895-013DUP	1.244	11.285	9.822	8.58	76.0	<1

	Oven ID	Temp In	Temp Out	Date In	Time In	Date Out	Time Out	Thermometer ID
Oven1	**K-OVEN-07**	**105**	**105**	**8/1/2024**	**12:04**	**8/2/2024**	**05:00**	

	Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time
Calibration1	**K-BALANCE-55**	**1.000/100.000**	**1.000/100.000**	**8/1/2024**	**11:25**	**8/1/2024**	**12:03**
Calibration2	**K-BALANCE-55**	**1.000/100.000**	**1.000/99.999**	**8/2/2024**	**05:10**	**8/2/2024**	**05:11**

Comments: TR SN11010 REVIEWED BY ZZB 8/2/2024

Analytical Results Summary

Instrument Name: K-Balance-61 **Analyst:** TRICKMAN **Analysis Lot:** 849376 **Method/Testcode:** 160.4 Modified/TVS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407895-001	Solids, Total Volatile	N/A		Soil	1.20 Percent	10 g	1.20 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-002	Solids, Total Volatile	N/A		Soil	1.10 Percent	10 g	1.10 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-003	Solids, Total Volatile	N/A		Soil	1.00 Percent	10 g	1.00 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-004	Solids, Total Volatile	N/A		Soil	1.80 Percent	10 g	1.80 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-005	Solids, Total Volatile	N/A		Soil	1.90 Percent	10 g	1.90 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-006	Solids, Total Volatile	N/A		Soil	2.10 Percent	10 g	2.10 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-007	Solids, Total Volatile	N/A		Soil	8.00 Percent	10 g	8.00 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-008	Solids, Total Volatile	N/A		Soil	5.10 Percent	10 g	5.10 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-009	Solids, Total Volatile	N/A		Soil	3.10 Percent	10 g	3.10 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-010	Solids, Total Volatile	N/A		Soil	2.70 Percent	10 g	2.70 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-011	Solids, Total Volatile	N/A		Soil	2.60 Percent	10 g	2.60 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-012	Solids, Total Volatile	N/A		Soil	2.90 Percent	10 g	2.90 Percent	1		0.10			8/1/24 12:45:00	N	IV
K2407895-013	Solids, Total Volatile	N/A		Soil	2.30 Percent	10 g	2.30 Percent	1		0.10			8/1/24 12:45:00	N	IV
KQ2411924-01	Solids, Total Volatile	DUP	K2407895-001	Soil	1.00 Percent	10 g	1.00 Percent	1		0.10		18	8/1/24 12:45:00	N	IV
KQ2411924-02	Solids, Total Volatile	DUP	K2407895-013	Soil	1.90 Percent	10 g	1.90 Percent	1		0.10		19	8/1/24 12:45:00	N	IV
KQ2411924-03	Solids, Total Volatile	MB		Soil	0.00 Percent	10 g	0.10 Percent U	1		0.10			8/1/24 12:45:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407895 Method: GTS

Run: 849376

Analysis: Total Solids / Volatile Solids Matrix: SOIL

Sample Number		MB	7895-001.02	7895-001DUP	7895-002.02	7895-003.02	7895-004.02
Crucible Number		DEN	JACK	TAD	BOB	LILY	BK
SampleWeight		50.3998	25.1659	25.1705	25.1527	25.3160	25.2201
Tare Weight	8/1/2024	48.2825	57.3377	55.2569	59.0736	57.5858	49.0846
Tare + Dry Wt. (1)	8/2/2024	48.2825	77.1165	75.8254	78.3533	75.9850	66.5270
Tare + Dry Wt. (2)	8/2/2024	48.2825	77.1161	75.8252	78.3531	75.9847	66.5268
Tare + Ash Wt. (1)	8/2/2024	48.2825	76.8847	75.6222	78.1525	75.8196	66.2851
Tare + Ash Wt. (2)	8/2/2024	48.2825	76.8727	75.6203	78.1460	75.8083	66.2120
Total Solids		0.0%	78.6%	81.7%	76.6%	72.7%	69.2%
Volatile Solids		#DIV/0!	1.2%	1.0%	1.1%	1.0%	1.8%

Sample Number		7895-005.02	7895-006.02	7895-007.02	7895-008.02	7895-009.02	7895-010.02
Crucible Number		FIREFLY	LAUGH	ELLIE	RJ	HOPE	116
Sample Weight		25.1796	25.4873	25.0169	25.0095	25.3068	25.0424
Tare Weight	8/1/2024	60.7907	48.2208	48.6697	51.8755	57.7392	51.7284
Tare + Dry Wt. (1)	8/2/2024	77.5240	64.9843	63.7060	69.8670	76.9833	68.5521
Tare + Dry Wt. (2)	8/2/2024	77.5239	64.9841	63.7058	69.8669	76.9833	68.5517
Tare + Ash Wt. (1)	8/2/2024	77.3249	64.6527	62.5392	69.1065	76.4605	68.1672
Tare + Ash Wt. (2)	8/2/2024	77.1992	64.6306	62.5040	68.9524	76.3799	68.1025
Total Solids		66.5%	65.8%	60.1%	71.9%	76.0%	67.2%
Volatile Solids		1.9%	2.1%	8.0%	5.1%	3.1%	2.7%

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	TR	Date:	8/1/2024
Reviewed By:	ZZB	Date:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407895 Method: GTS

Run: 849376

Analysis: Total Solids / Volatile Solids Matrix:

Sample Number		7895-011.02	7895-012.02	7895-013.02	7895-013DUP		
Crucible Number		DOG	BROWN	FOX	ROCKY		
SampleWeight		25.3018	25.3338	25.1320	25.1914		
Tare Weight	8/1/2024	55.2002	49.3992	46.5979	51.4748		
Tare + Dry Wt. (1)	8/2/2024	72.0707	66.6314	64.9167	70.5054		
Tare + Dry Wt. (2)	8/2/2024	72.0706	66.6311	64.9165	70.5053		
Tare + Ash Wt. (1)	8/2/2024	71.6705	66.1561	64.5233	70.1543		
Tare + Ash Wt. (2)	8/2/2024	71.6318	66.1296	64.4984	70.1486		
Total Solids		66.7%	68.0%	72.9%	75.5%	#DIV/0!	#DIV/0!
Volatile Solids		2.6%	2.9%	2.3%	1.9%	#DIV/0!	#DIV/0!

Sample Number							
Crucible Number							
Sample Weight							
Tare Weight	Date						
Tare + Dry Wt. (1)							
Tare + Dry Wt. (2)							
Tare + Ash Wt. (1)							
Tare + Ash Wt. (2)							
Total Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Volatile Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	TR	Date:	8/1/2024
Reviewed By:	ZZB	Date:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: K2407895 Method: GTS

Run: 849376

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	12:45	8/1/2024	5:00	8/2/2024
105	5:20	8/2/2024	6:30	8/2/2024
550	7:18	8/2/2024	8:22	8/2/2024
550	9:05	8/2/2024	10:11	8/2/2024

Analyzed By:	TR	Date Analyzed:	8/1/2024
Reviewed By:	ZZB	Date Reviewed:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407895 Method: GTS

Run: 849376

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	199.9999	100.0%	CCV1	9.9996	100.0%	8/1/2024
CCV2	200.0001	100.0%	CCV2	9.9997	100.0%	8/1/2024
CCV3	200.0002	100.0%	CCV3	9.9997	100.0%	8/2/2024
CCV4	200.0000	100.0%	CCV4	10.0002	100.0%	8/2/2024
CCV5	199.9998	100.0%	CCV5	9.9996	100.0%	8/2/2024
CCV6	199.9999	100.0%	CCV6	9.9997	100.0%	8/2/2024
CCV7	200.0000	100.0%	CCV7	10.0002	100.0%	8/2/2024
CCV8	200.0000	100.0%	CCV8	9.9999	100.0%	8/2/2024
CCV9	199.9998	100.0%	CCV9	9.9997	100.0%	8/2/2024
CCV10	199.9999	100.0%	CCV10	9.9999	100.0%	8/2/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	TR	Date Analyzed:	8/1/2024
Reviewed By:	22B	Date Reviewed:	8/5/24

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Work Request # K2407895

Date Analyzed: 9/3/24

Analyst: KK

Run # 853247

Analysis: ASTM D422M EB

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/(NA)
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/(NA)
9.	Are results for methods blanks all ND?	yes/no/(NA)
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	yes/no/(NA)
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the bench sheet crossed out?	yes/no/(NA)
17.	Was analysis turned in by the data due date? (If not record SR#)	yes/(no)/NA

COMMENTS:

Secondary Approved by: _____ Date: 09/18/24

DQREPORT

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-001

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM UJC S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	1.2889	1.6051
Gravel 2.00 mm (g)	10	7.2541	9.0337
Gravel 0.850 mm (g)	20	10.2514	12.7664
Gravel 0.425 mm (g)	40	6.2709	7.8093
Gravel 0.250 mm (g)	60	3.4173	4.2557
Gravel 0.106 mm (g)	140	2.3657	2.9461
Gravel 0.075 mm (g)	200	0.4053	0.5047
S/C <0.075 mm (g)	Pan	0.2203	0.2743

Sieve Stack:

Total (g) Recov'd	31.4739
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	142.1972
Grams Beaker (Tare)	110.6128
GramsGravel/Sand	31.5844

I. Sample Preparation

Grams As Received Sample	40.2670
Percent (%) Solids	80.3
Grams Oven Dried Sample	32.3344

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.2661	28.2450	27.4177	28.0119	29.9196	27.3517	27.4792
Grams of Tare	27.2497	28.2358	27.4118	28.0087	29.9166	27.3487	27.4763
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0144	0.0072	0.0039	0.0012	0.0010	0.0010	0.0009
Total Grams Sample X 50	0.3600	0.1650	0.1350	0.0100	0.0000	0.0050	0.0450

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-E

Analyst: KK Date: 9/3/2024

Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-001DUP

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM UJC S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	3.2800	4.0847
Gravel 2.00 mm (g)	10	8.3162	10.3564
Gravel 0.850 mm (g)	20	10.1927	12.6933
Gravel 0.425 mm (g)	40	6.0451	7.5281
Gravel 0.250 mm (g)	60	2.5215	3.1401
Gravel 0.106 mm (g)	140	1.6921	2.1072
Gravel 0.075 mm (g)	200	0.3196	0.3980
S/C <0.075 mm (g)	Pan	0.1201	0.1496

Sieve Stack:

Total (g) Recov'd	32.4873
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	142.9421
Grams Beaker (Tare)	110.4390
GramsGravel/Sand	32.5031

I. Sample Preparation

Grams As Received Sample	40.2700
Percent (%) Solids	80.3
Grams Oven Dried Sample	32.3368

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	28.7650	28.6961	27.2477	29.2082	28.2217	27.5861	27.5390
Grams of Tare	28.7508	28.6892	27.2432	29.2046	28.2186	27.5831	27.5362
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0122	0.0049	0.0025	0.0016	0.0011	0.0010	0.0008
Total Grams Sample X 50	0.3650	0.1200	0.0450	0.0250	0.0050	0.0100	0.0400

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Wa 98626

Service Request #: K2407895
Sample #: K2407895-002

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM UJC S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

Sieve Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	2.0339	2.9520
Gravel 2.00 mm (g)	10	7.9895	11.5958
Gravel 0.850 mm (g)	20	7.0317	10.2057
Gravel 0.425 mm (g)	40	5.8578	8.5019
Gravel 0.250 mm (g)	60	4.2607	6.1839
Gravel 0.106 mm (g)	140	2.3891	3.4675
Gravel 0.075 mm (g)	200	0.2794	0.4055
S/C <0.075 mm (g)	Pan	0.0812	0.1179

Sieve Stack:

Total (g) Recov'd	29.9233
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	185.9788
Grams Beaker (Tare)	156.0169
GramsGravel/Sand	29.9619

I. Sample Preparation

Grams As Received Sample	40.2270
Percent (%) Solids	68.9
Grams Oven Dried Sample	27.7164

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	33.8415	27.2017	27.4367	27.4426	28.3762	27.0793	29.1478
Grams of Tare	33.8305	27.1950	27.4319	27.4390	28.3730	27.0761	29.1447
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0090	0.0047	0.0028	0.0016	0.0012	0.0012	0.0011
Total Grams Sample X 50	0.2150	0.0950	0.0600	0.0200	0.0000	0.0050	0.0550

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-003

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM UJC S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	1.4337	1.9830
Gravel 2.00 mm (g)	10	1.7879	2.4729
Gravel 0.850 mm (g)	20	6.1033	8.4416
Gravel 0.425 mm (g)	40	9.7071	13.4261
Gravel 0.250 mm (g)	60	6.8419	9.4632
Gravel 0.106 mm (g)	140	2.6896	3.7201
Gravel 0.075 mm (g)	200	0.1487	0.2057
S/C <0.075 mm (g)	Pan	0.0268	0.0371

Sieve Stack:

Total (g) Recov'd	28.7390
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	137.0267
Grams Beaker (Tare)	108.2809
GramsGravel/Sand	28.7458

I. Sample Preparation

Grams As Received Sample	40.1540
Percent (%) Solids	72.3
Grams Oven Dried Sample	29.0313

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.6789	27.9374	27.8731	40.5157	28.0657	27.7515	27.2738
Grams of Tare	27.6715	27.9325	27.8692	40.5121	28.0622	27.7484	27.2708
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0054	0.0029	0.0019	0.0016	0.0015	0.0011	0.0010
Total Grams Sample X 50	0.1250	0.0500	0.0150	0.0050	0.0200	0.0050	0.0500

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-004

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM USH S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	3.5869	5.1536
Gravel 2.00 mm (g)	10	11.1085	15.9605
Gravel 0.850 mm (g)	20	13.1174	18.8468
Gravel 0.425 mm (g)	40	4.6133	6.6283
Gravel 0.250 mm (g)	60	1.1640	1.6724
Gravel 0.106 mm (g)	140	0.5838	0.8388
Gravel 0.075 mm (g)	200	0.0777	0.1116
S/C <0.075 mm (g)	Pan	0.0387	0.0556

Sieve Stack:

Total (g) Recov'd	34.2903
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	142.1703
Grams Beaker (Tare)	107.7720
GramsGravel/Sand	34.3983

I. Sample Preparation

Grams As Received Sample	50.3440
Percent (%) Solids	69.6
Grams Oven Dried Sample	35.0394

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.5463	28.1952	28.0910	27.4821	27.9122	27.5234	27.5407
Grams of Tare	27.5403	28.1905	28.0869	27.4781	27.9087	27.5199	27.5373
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0040	0.0027	0.0021	0.0020	0.0015	0.0015	0.0014
Total Grams Sample X 50	0.0650	0.0300	0.0050	0.0250	0.0000	0.0050	0.0700

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-005

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM USH S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.9156	1.4792
Gravel 2.00 mm (g)	10	5.5267	8.9284
Gravel 0.850 mm (g)	20	10.1403	16.3817
Gravel 0.425 mm (g)	40	8.2142	13.2701
Gravel 0.250 mm (g)	60	4.2089	6.7995
Gravel 0.106 mm (g)	140	3.1005	5.0089
Gravel 0.075 mm (g)	200	0.4200	0.6785
S/C <0.075 mm (g)	Pan	0.1529	0.2470

Sieve Stack:

Total (g) Recov'd	32.6791
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	146.3197
Grams Beaker (Tare)	113.6049
GramsGravel/Sand	32.7148

I. Sample Preparation

Grams As Received Sample	50.0180
Percent (%) Solids	61.9
Grams Oven Dried Sample	30.9611

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	26.7926	27.2770	27.6079	27.7184	27.7356	27.2284	28.2711
Grams of Tare	26.7803	27.2690	27.6020	27.7133	27.7312	27.2244	28.2676
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0103	0.0060	0.0039	0.0031	0.0024	0.0020	0.0015
Total Grams Sample X 50	0.2150	0.1050	0.0400	0.0350	0.0200	0.0250	0.0750

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-006

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM USH S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.1103	0.1641
Gravel 2.00 mm (g)	10	5.8091	8.6445
Gravel 0.850 mm (g)	20	14.0981	20.9793
Gravel 0.425 mm (g)	40	9.2660	13.7887
Gravel 0.250 mm (g)	60	2.7467	4.0874
Gravel 0.106 mm (g)	140	0.9865	1.4680
Gravel 0.075 mm (g)	200	0.1008	0.1500
S/C <0.075 mm (g)	Pan	0.0448	0.0667

Sieve Stack:

Total (g) Recov'd	33.1623
Total (%) Recov'd	99.8

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	140.2286
Grams Beaker (Tare)	106.9980
GramsGravel/Sand	33.2306

I. Sample Preparation

Grams As Received Sample	50.4270
Percent (%) Solids	67.2
Grams Oven Dried Sample	33.8869

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	31.5850	27.9441	28.3872	28.0244	27.6075	27.9156	27.9937
Grams of Tare	31.5775	27.9388	28.3823	28.0198	27.6035	27.9117	27.9900
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0055	0.0033	0.0029	0.0026	0.0020	0.0019	0.0017
Total Grams Sample X 50	0.1100	0.0200	0.0150	0.0300	0.0050	0.0100	0.0850

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-007

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMEFSC S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.5575	0.9781
Gravel 2.00 mm (g)	10	2.2795	3.9991
Gravel 0.850 mm (g)	20	7.4053	12.9918
Gravel 0.425 mm (g)	40	9.0081	15.8037
Gravel 0.250 mm (g)	60	2.6400	4.6316
Gravel 0.106 mm (g)	140	1.2671	2.2230
Gravel 0.075 mm (g)	200	0.1134	0.1989
S/C <0.075 mm (g)	Pan	0.1390	0.2439

Sieve Stack:

Total (g) Recov'd	23.4099
Total (%) Recov'd	101

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	133.1457
Grams Beaker (Tare)	109.8706
GramsGravel/Sand	23.2751

I. Sample Preparation

Grams As Received Sample	40.2510
Percent (%) Solids	57.0
Grams Oven Dried Sample	22.9431

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	41.9226	28.5734	28.4075	28.2525	28.3141	28.2711	28.1367
Grams of Tare	41.9154	28.5675	28.4032	28.2492	28.3109	28.2683	28.1339
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0052	0.0039	0.0023	0.0013	0.0012	0.0008	0.0008
Total Grams Sample X 50	0.0650	0.0800	0.0500	0.0050	0.0200	0.0000	0.0400

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-008

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMEFSC S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	38.1219	56.6447
Gravel 2.00 mm (g)	10	15.2205	22.6159
Gravel 0.850 mm (g)	20	4.7310	7.0297
Gravel 0.425 mm (g)	40	0.9340	1.3878
Gravel 0.250 mm (g)	60	0.2958	0.4395
Gravel 0.106 mm (g)	140	0.3034	0.4508
Gravel 0.075 mm (g)	200	0.0810	0.1204
S/C <0.075 mm (g)	Pan	0.1985	0.2949

Sieve Stack:

Total (g) Recov'd	59.8861
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	165.7654
Grams Beaker (Tare)	105.9606
GramsGravel/Sand	59.8048

I. Sample Preparation

Grams As Received Sample	80.2240
Percent (%) Solids	67.3
Grams Oven Dried Sample	53.9908

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	28.7100	28.0431	28.0468	27.5683	27.7844	27.7874	28.6684
Grams of Tare	28.7026	28.0372	28.0425	27.5649	27.7815	27.7846	28.6660
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0054	0.0039	0.0023	0.0014	0.0009	0.0008	0.0004
Total Grams Sample X 50	0.0750	0.0800	0.0450	0.0250	0.0050	0.0200	0.0200

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-009

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMEFSC S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	14.6410	20.6794
Gravel 2.00 mm (g)	10	12.2585	17.3143
Gravel 0.850 mm (g)	20	7.4337	10.4996
Gravel 0.425 mm (g)	40	2.4009	3.3911
Gravel 0.250 mm (g)	60	0.6763	0.9552
Gravel 0.106 mm (g)	140	0.5010	0.7076
Gravel 0.075 mm (g)	200	0.0855	0.1208
S/C <0.075 mm (g)	Pan	0.1279	0.1806

Sieve Stack:

Total (g) Recov'd	38.1248
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	146.8315
Grams Beaker (Tare)	108.7772
GramsGravel/Sand	38.0543

I. Sample Preparation

Grams As Received Sample	50.2740
Percent (%) Solids	70.8
Grams Oven Dried Sample	35.5940

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	28.3215	40.7590	27.8078	27.1301	27.8996	27.9162	28.6263
Grams of Tare	28.3151	40.7547	27.8043	27.1268	27.8970	27.9137	28.6243
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0044	0.0023	0.0015	0.0013	0.0006	0.0005	0.0000
Total Grams Sample X 50	0.1050	0.0400	0.0100	0.0350	0.0050	0.0250	0.0000

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-010

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM LSC S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.2111	0.3367
Gravel 2.00 mm (g)	10	1.1057	1.7635
Gravel 0.850 mm (g)	20	4.0094	6.3946
Gravel 0.425 mm (g)	40	6.8549	10.9329
Gravel 0.250 mm (g)	60	3.8817	6.1909
Gravel 0.106 mm (g)	140	3.1829	5.0764
Gravel 0.075 mm (g)	200	0.5938	0.9470
S/C <0.075 mm (g)	Pan	0.2588	0.4128

Sieve Stack:

Total (g) Recov'd	20.0983
Total (%) Recov'd	101

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	131.4036
Grams Beaker (Tare)	111.4377
GramsGravel/Sand	19.9659

I. Sample Preparation

Grams As Received Sample	30.1990
Percent (%) Solids	62.7
Grams Oven Dried Sample	18.9348

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	42.7684	27.5453	28.3048	27.7501	27.4657	28.2288	41.3851
Grams of Tare	42.7506	27.5375	28.2992	27.7461	27.4623	28.2254	41.3825
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0158	0.0058	0.0036	0.0020	0.0014	0.0014	0.0006
Total Grams Sample X 50	0.5000	0.1100	0.0800	0.0300	0.0000	0.0400	0.0300

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-E

Analyst: KK Date: 9/3/2024

Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-011

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM LSC S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.0000	0.0000
Gravel 2.00 mm (g)	10	0.7794	1.2065
Gravel 0.850 mm (g)	20	4.7376	7.3337
Gravel 0.425 mm (g)	40	6.8298	10.5724
Gravel 0.250 mm (g)	60	4.5908	7.1065
Gravel 0.106 mm (g)	140	2.9231	4.5249
Gravel 0.075 mm (g)	200	0.2220	0.3437
S/C <0.075 mm (g)	Pan	0.0730	0.1130

Sieve Stack:

Total (g) Recov'd	20.1557
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	131.1892
Grams Beaker (Tare)	111.0143
GramsGravel/Sand	20.1749

I. Sample Preparation

Grams As Received Sample	30.1000
Percent (%) Solids	64.6
Grams Oven Dried Sample	19.4446

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	28.1113	28.6772	28.3129	27.7599	27.9050	27.3917	27.4133
Grams of Tare	28.1042	28.6722	28.3092	27.7563	27.9016	27.3886	27.4106
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0051	0.0030	0.0017	0.0016	0.0014	0.0011	0.0007
Total Grams Sample X 50	0.1050	0.0650	0.0050	0.0100	0.0150	0.0200	0.0350

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Wa 98626

Service Request #: K2407895
Sample #: K2407895-012

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM LSC S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.0000	0.0000
Gravel 2.00 mm (g)	10	0.7493	1.1234
Gravel 0.850 mm (g)	20	3.0812	4.6195
Gravel 0.425 mm (g)	40	5.3008	7.9472
Gravel 0.250 mm (g)	60	5.1088	7.6594
Gravel 0.106 mm (g)	140	5.0668	7.5964
Gravel 0.075 mm (g)	200	0.4864	0.7292
S/C <0.075 mm (g)	Pan	0.1444	0.2165

Sieve Stack:

Total (g) Recov'd	19.9377
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	124.3221
Grams Beaker (Tare)	104.3394
GramsGravel/Sand	19.9827

I. Sample Preparation

Grams As Received Sample	30.2390
Percent (%) Solids	66.7
Grams Oven Dried Sample	20.1694

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	28.2377	27.7564	28.3259	27.4521	28.9468	30.6166	27.1733
Grams of Tare	28.2269	27.7505	28.3213	27.4481	28.9436	30.6134	27.1702
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0088	0.0039	0.0026	0.0020	0.0012	0.0012	0.0011
Total Grams Sample X 50	0.2450	0.0650	0.0300	0.0400	0.0000	0.0050	0.0550

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407895
Sample #: K2407895-013

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM LSH S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.2288	0.2991
Gravel 2.00 mm (g)	10	1.4256	1.8635
Gravel 0.850 mm (g)	20	9.1814	12.0018
Gravel 0.425 mm (g)	40	14.2725	18.6569
Gravel 0.250 mm (g)	60	3.8712	5.0604
Gravel 0.106 mm (g)	140	1.0659	1.3933
Gravel 0.075 mm (g)	200	0.0702	0.0918
S/C <0.075 mm (g)	Pan	0.0232	0.0303

Sieve Stack:

Total (g) Recov'd	30.1388
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	140.8534
Grams Beaker (Tare)	110.6551
GramsGravel/Sand	30.1983

I. Sample Preparation

Grams As Received Sample	40.0950
Percent (%) Solids	76.5
Grams Oven Dried Sample	30.6727

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.1839	27.3418	33.5880	27.5622	30.5590	34.7046	29.0067
Grams of Tare	27.1768	27.3361	33.5829	27.5573	30.5547	34.7009	29.0037
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0051	0.0037	0.0031	0.0029	0.0023	0.0017	0.0010
Total Grams Sample X 50	0.0700	0.0300	0.0100	0.0300	0.0300	0.0350	0.0500

Analyst: KK Date: 9/3/2024
Reviewed by: Date: 09/18/24

Work Request # K2407895

IV

Date Analyzed: 8.2.24

Analyst: MAS

Run # 84952

Analysis: PSEP Sulfide

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	yes/(no)/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	(yes)/no/NA
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the bench sheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

- All samples were received past hold.

Secondary Approved by: [signature] Date: 08/12/24

DQREPORT

Analytical Results Summary

Instrument Name: K-UV-VIS-06 **Analyst:** MSPECHT **Analysis Lot:** 849512 **Method/Testcode:** PSEP Sulfide/PSEP Sulfide

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407895-001	Sulfide, Total	N/A		Soil	0.01 mg/L	10.8580 g	1.1 mg/Kg U	1	0.4	1.1			8/2/24 18:25:00	N	IV
K2407895-002	Sulfide, Total	N/A		Soil	0.01 mg/L	10.8280 g	1.3 mg/Kg U	1	0.5	1.3			8/2/24 18:25:00	N	IV
K2407895-003	Sulfide, Total	N/A		Soil	0.01 mg/L	10.8460 g	1.3 mg/Kg U	1	0.4	1.3			8/2/24 18:25:00	N	IV
K2407895-004	Sulfide, Total	N/A		Soil	0.01 mg/L	10.6580 g	1.3 mg/Kg U	1	0.5	1.3			8/2/24 18:25:00	N	IV
K2407895-005	Sulfide, Total	N/A		Soil	0.01 mg/L	10.8180 g	1.5 mg/Kg U	1	0.5	1.5			8/2/24 18:25:00	N	IV
K2407895-006	Sulfide, Total	N/A		Soil	0.01 mg/L	10.6680 g	1.4 mg/Kg U	1	0.5	1.4			8/2/24 18:25:00	N	IV
K2407895-007	Sulfide, Total	N/A		Soil	0.00 mg/L	10.2800 g	1.7 mg/Kg U	1	0.6	1.7			8/2/24 18:25:00	N	IV
K2407895-008	Sulfide, Total	N/A		Soil	0.02 mg/L	10.4080 g	1.4 mg/Kg U	1	0.5	1.4			8/2/24 18:25:00	N	IV
K2407895-009	Sulfide, Total	N/A		Soil	0.02 mg/L	10.7890 g	1.3 mg/Kg U	1	0.4	1.3			8/2/24 18:25:00	N	IV
K2407895-010	Sulfide, Total	N/A		Soil	0.02 mg/L	10.1160 g	1.6 mg/Kg U	1	0.5	1.6			8/2/24 18:25:00	N	IV
K2407895-011	Sulfide, Total	N/A		Soil	0.02 mg/L	10.0970 g	1.5 mg/Kg U	1	0.5	1.5			8/2/24 18:25:00	N	IV
K2407895-012	Sulfide, Total	N/A		Soil	0.04 mg/L	10.6620 g	1.4 mg/Kg U	1	0.5	1.4			8/2/24 18:25:00	N	IV
K2407895-013	Sulfide, Total	N/A		Soil	0.01 mg/L	10.2250 g	1.3 mg/Kg U	1	0.4	1.3			8/2/24 18:25:00	N	IV
KQ2411973-01	Sulfide, Total	MS	K2407895-003	Soil	0.38 mg/L	10.5050 g	500 mg/Kg	200	80	260	97		8/2/24 18:25:00	N	IV
KQ2411973-02	Sulfide, Total	DMS	K2407895-003	Soil	0.37 mg/L	10.9030 g	470 mg/Kg	200	80	250	94	7	8/2/24 18:25:00	N	IV
KQ2411973-03	Sulfide, Total	DUP	K2407895-003	Soil	0.01 mg/L	10.9740 g	1.3 mg/Kg U	1	0.4	1.3		NC	8/2/24 18:25:00	N	IV
KQ2411973-04	Sulfide, Total	TRP	K2407895-003	Soil	0.00 mg/L	10.8030 g	1.3 mg/Kg U	1	0.4	1.3		NC	8/2/24 18:25:00	N	IV
KQ2411973-05	Sulfide, Total	MB		Soil	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/2/24 18:25:00	N	IV
KQ2411973-06	Sulfide, Total	LCS		Soil	0.40 mg/L	10 g	402 mg/Kg	200	60	200	103		8/2/24 18:25:00	N	IV
KQ2412368-01	Sulfide, Total	CCV		Soil	0.60 mg/L	10 g	0.603 mg/L	1					8/2/24 18:25:00	N	IV
KQ2412368-02	Sulfide, Total	CCV		Soil	0.60 mg/L	10 g	0.602 mg/L	1					8/2/24 18:25:00	N	IV
KQ2412368-03	Sulfide, Total	CCV		Soil	0.60 mg/L	10 g	0.603 mg/L	1					8/2/24 18:25:00	N	IV
KQ2412368-04	Sulfide, Total	CCB		Soil	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/2/24 18:25:00	N	IV
KQ2412368-05	Sulfide, Total	CCB		Soil	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/2/24 18:25:00	N	IV
KQ2412368-06	Sulfide, Total	CCB		Soil	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/2/24 18:25:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Environmental
Kelso

SulfidePSEP_8_2_2024_6:25:00_PM

02-Aug-2024 06:57 PM
Method name: PSEP Sulfide 8-2-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 02-Aug-2024 06:48 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Sample	Absorbance(λ)	Concentration [mg/L]
ccv 1	0.233	0.603
ccb 1	0.001	out of range
mb 1	0.008	0.003
lcs 200x 1	0.158	0.402
7895-1 1	0.011	0.011
7895-2 1	0.009	0.005
7895-3 1	0.010	0.010
7895-3dup 1	0.010	0.007
7895-3trip 1	0.008	0.004
7895-3ms 200x 1	0.149	0.380
7895-3msd 200x 1	0.145	0.368
7895-4 1	0.009	0.007
ccv2 1	0.233	0.602
ccb2 1	0.001	out of range
7895-5 1	0.009	0.006
7895-6 1	0.011	0.012
7895-7 1	0.007	0.001
7895-8 1	0.012	0.015
7895-9 1	0.013	0.017
7895-10 1	0.014	0.018
7895-11 1	0.012	0.015
7895-12 1	0.020	0.036
7895-13 1	0.012	0.013
ccv3 1	0.233	0.603
ccb3 1	0.002	out of range

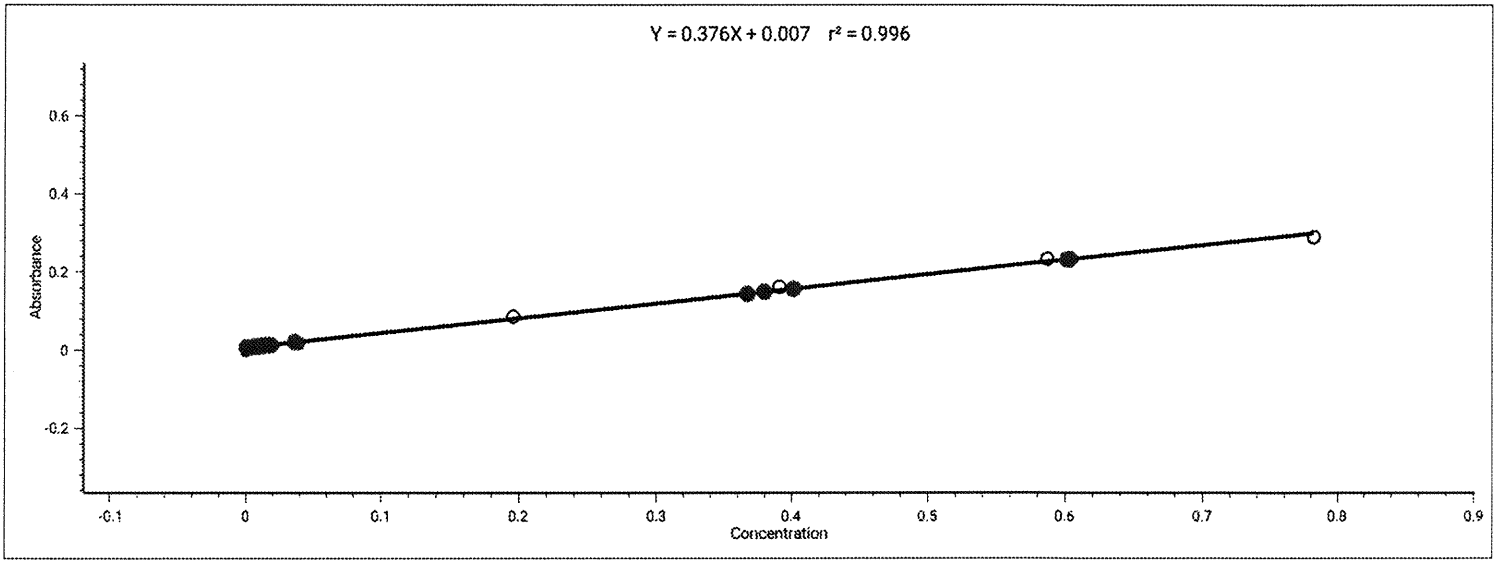
ALS Environmental
Kelso

SulfidePSEP_8_2_2024_6:25:00_PM
02-Aug-2024 06:57 PM
Method name: PSEP Sulfide 8-2-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 02-Aug-2024 06:48 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Quant method parameters	
Equation	**Y = 0.376X + 0.007**
R^2:	**1.00**
λ	**650 nm**
Reference λ	



Standard	Absorbance(λ)	Concentration [mg/L]
Standard 1	0.001	out of range
Standard 2	0.018	0.039
Standard 3	0.086	0.196
Standard 4	0.162	0.391
Standard 5	0.233	0.587
Standard 6	0.290	0.782

Calibration Curve Relative Error Evaluation - Inorganics

Method:	PSEP SULFIDE
Run Number:	849512
Instrument:	K-UV-VIS-06
Date:	08/02/24

Instructions:

1) Enter slope (a) and intercept (b) from calibration raw data.
2) Enter calibration true values (do not include the origin (0,0) as a clibration point).
3) Enter the measured response for each calibration point.
4) If different than ±10%, update the %RE criteria to the method's CCV criteria.
   (Note that the low point criteria is ± 50% for all methods)
5) Reject the calibration if any standard point "Fail".

Y = aX + b

a =	0.376
b =	0.007

Standard #	True Value	Measured Response	Calculated Concetration	Percent Relative Error (%RE)	%RE Criteria	Pass/Fail
1	0.039	0.018	0.0293	-25.0	50	Pass
2	0.196	0.086	0.2101	7.2	10	Pass
3	0.391	0.162	0.4122	5.4	10	Pass
4	0.587	0.233	0.6011	2.4	10	Pass
5	0.782	0.290	0.7527	-3.8	10	Pass
6					10	
7					10	
8					10	

PSEP Curve		
Amount (mL)	**Conc (mg/L)**	**S2 WSTD (mg/L) 200x dilution**
0.00	0.0000	**19.55**
0.10	0.0391	
0.50	0.1955	
1.00	0.3910	
1.50	0.5865	
2.00	0.7820	

Change WL to 650 nm

CCV S2 mg/L:	3911

CCV Standardization Check	
Ml S203 Check 1:	1.23
Ml S203 Check 2:	1.25
Avg ml S203:	**1.24**

ICV Standardization Check		S2 mg/L RPD	(+/- 10%)
Ml S203 Check:	1.24	0.0	
ICV S2 mg/L:	3911		

ALS ENVIRONMENTAL

Work Order #.: K2407895

Analysis: 9030/ 9030M/ AVS/ PSEP

Date Prepared	Sample Name / Lab Code	Initial Wt./Vol. (g) or (ml)	Final Volume (ml)	mg/L - mg/kg As Rec'd	% Solids	mg/kg Dry Wt.
8-2-24	MB	10.0	50			
	LCS	10.0				
	7895-1	10.858				
	-2	10.828				
	-3	10.846				
	-3 dup	10.974				
	-3 trip	10.803				
	-3 MS	10.505				
	-3 msd	10.903				
	-4	10.658				
	-5	10.818				
	-6	10.668				
	-7	10.280				
	-8	10.408				
	-9	10.789				
	-10	10.116				
	-11	10.097				
	-12	10.662				
	-13	10.725				
			NA			
					MAS 8-2-24	

Prepared By: MAS		8-2-24
Analyzed By: MAS		8-2-24
Reviewed By:		08/12/24

Preparation Information Benchsheet

Prep Run#: 442588
Team: GenChem/MSPECHT
Number of Copies to make: 1

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 8/2/24 14:45

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411973-05	MB		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
2	KQ2411973-06	LCS		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
3	K2407895-001	2024 KGM UJC S1	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.8580g	50.00mL	
4	K2407895-002	2024 KGM UJC S2	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.8280g	50.00mL	
5	K2407895-003	2024 KGM UJC S3	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.8460g	50.00mL	
6	KQ2411973-03	K2407895-003 DUP	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.9740g	50.00mL	
7	KQ2411973-04	K2407895-003 TRP	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.8030g	50.00mL	
8	KQ2411973-01	K2407895-003 MS	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.5050g	50.00mL	
9	KQ2411973-02	K2407895-003 DMS	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.9030g	50.00mL	
10	K2407895-004	2024 KGM USH S1	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.6580g	50.00mL	
11	K2407895-005	2024 KGM USH S2	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.8180g	50.00mL	
12	K2407895-006	2024 KGM USH S3	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.6680g	50.00mL	
13	K2407895-007	2024 KGMEFSC S1	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.2800g	50.00mL	
14	K2407895-008	2024 KGMEFSC S2	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.4080g	50.00mL	
15	K2407895-009	2024 KGMEFSC S3	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.7890g	50.00mL	
16	K2407895-010	2024 KGM LSC S1	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.1160g	50.00mL	
17	K2407895-011	2024 KGM LSC S2	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.0970g	50.00mL	
18	K2407895-012	2024 KGM LSC S3	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.6620g	50.00mL	
19	K2407895-013	2024 KGM LSH S1	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.2250g	50.00mL	

Preparation Steps

Step: Distillation
Started: 8/2/24 14:45
Finished: 8/2/24 16:25
By: MSPECHT
Comments

Comments: _____

Reviewed By: _____ Date: 08/12/24

Preparation Information Benchsheet

Prep Run#: 442588
Team: GenChem/MSPECHT

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 8/2/24 14:45

Chain of Custody

Relinquished By:		Date:		Extracts Examined
Received By:		Date:		Yes No

ALS Environmental - Laboratory Note Sheet

Service Request Number(s):

K2407895

Sample Number	Initial Volume	Final Volume	Dilution Factor		
LCS	0.125 mL	25 mL	200X		
7895-3 MS	1	1	1		
-3 MSd	1	1	1		
		N			
		A			
				MAS	
				8.9.24	

Comments/Notes:

Analyst: MAS Date: 8-2-24

Reviewed: Date: 08/12/24

R:\WET\ANALYSES\Dilution Benchsheet 2022

StarLims Run #: 849512

Analysis: **Sulfide**

Method: **PSEP**

Al Treated HCl: 24-GEN-05-15K Stock Amine Solution (DPD): 24-GEN-05-18G

Iodine Solution: 24-GEN-05-15H DPD Working Solution: 24-GEN-05-18L

Ferric Chloride: 24-GEN-05-15J

Sodium Hydroxide 0.5N: 24-GEN-05-18M

(CCV) Sodium Thiosulfate 0.025N: 23-GEN-06-17F HCl (6N): 24-GEN-05-15I

(ICV) Sodium Thiosulfate 0.025N: 23-GEN-06-09I

Starch Indicator Solution: 24-GEN-05-11J H2SO4 (50%): 23-GEN-1-96L

Sulfide Stock Standard: 21-GEN-S2/4-3A

Sulfide Working Standard: 21-GEN-S2/4-83O

Equipment: K-HOTBLOCK-03,K-HOTBLOCK-04, K-UV-VIS-06

Pipettes: Ophos-Alfred, TOC-AGENT SMITH, TEALY

Analyzed By: MAS	Date Analyzed: 8/2/2024
Reviewed By:	Date Reviewed: 08/12/24

Work Request # K2407891, K2407895

Date Analyzed: 8/2/24

Analyst: ARM

Run # 849441

Analysis: TOC Soil PSEP

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	yes/no/(NA)
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

Final Approved by: RRM Date: 8/5/24

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849441 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407891-007	Carbon, Total Organic (TOC)	N/A		Soil	0.41 Percent	250 mg	0.41 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-011	Carbon, Total Organic (TOC)	N/A		Soil	0.05 Percent	250.3 mg	0.05 Percent J	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-012	Carbon, Total Organic (TOC)	N/A		Soil	0.41 Percent	250 mg	0.41 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-013	Carbon, Total Organic (TOC)	N/A		Soil	0.11 Percent	250.6 mg	0.11 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-014	Carbon, Total Organic (TOC)	N/A		Soil	0.39 Percent	250.3 mg	0.39 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-001	Carbon, Total Organic (TOC)	N/A		Soil	0.42 Percent	250 mg	0.42 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-002	Carbon, Total Organic (TOC)	N/A		Soil	0.20 Percent	250 mg	0.20 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-003	Carbon, Total Organic (TOC)	N/A		Soil	0.09 Percent	250 mg	0.09 Percent J	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-004	Carbon, Total Organic (TOC)	N/A		Soil	0.28 Percent	250 mg	0.28 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-005	Carbon, Total Organic (TOC)	N/A		Soil	0.27 Percent	250.4 mg	0.27 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-006	Carbon, Total Organic (TOC)	N/A		Soil	0.25 Percent	250.3 mg	0.25 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-007	Carbon, Total Organic (TOC)	N/A		Soil	4.05 Percent	150 mg	4.05 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-008	Carbon, Total Organic (TOC)	N/A		Soil	2.76 Percent	150 mg	2.76 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-009	Carbon, Total Organic (TOC)	N/A		Soil	1.03 Percent	150.1 mg	1.03 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-013	Carbon, Total Organic (TOC)	N/A		Soil	0.34 Percent	250.1 mg	0.34 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-01	Carbon, Total Organic (TOC)	DUP	K2407891-007	Soil	0.40 Percent	125.3 mg	0.40 Percent	1	0.005	0.10		2	8/2/24 09:22:19	N	IV
KQ2411967-02	Carbon, Total Organic (TOC)	TRP	K2407891-007	Soil	0.41 Percent	125 mg	0.41 Percent	1	0.005	0.10		1	8/2/24 09:22:19	N	IV
KQ2411967-03	Carbon, Total Organic (TOC)	MS	K2407891-007	Soil	2.87 Percent	250 mg	2.87 Percent	1	0.005	0.10	100		8/2/24 09:22:19	N	IV
KQ2411967-04	Carbon, Total Organic (TOC)	DMS	K2407891-007	Soil	2.80 Percent	250 mg	2.80 Percent	1	0.005	0.10	99	1	8/2/24 09:22:19	N	IV
KQ2411967-05	Carbon, Total Organic (TOC)	LCS		Soil	3.23 Percent	250.8 mg	3.23 Percent	1	0.005	0.10	108		8/2/24 09:22:19	N	IV
KQ2411967-06	Carbon, Total Organic (TOC)	MB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-07	Carbon, Total Organic (TOC)	CCV		Soil	12.19 Percent	25.7 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV
KQ2411967-08	Carbon, Total Organic (TOC)	CCV		Soil	12.22 Percent	25.6 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV
KQ2411967-09	Carbon, Total Organic (TOC)	CCV		Soil	12.22 Percent	25.5 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849441 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2411967-10	Carbon, Total Organic (TOC)	CCV		Soil	12.23 Percent	25.2 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV
KQ2411967-11	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-12	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-13	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-14	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

AnalysisGroup

AnalysisGroup: % TOC 2024E

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 7/12/2024 11:11:53 AM
Last modification: 8/2/2024 1:45:32 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.19% 102%	25.700mg	8/2/2024 9:22:19 AM	
CCB	TC: 0.00016%	250.000mg	8/2/2024 9:32:11 AM	TC: Out of the calibrated ranges
LCS	TC: 3.23% 108%	250.800mg	8/2/2024 9:40:00 AM	
MB	TC: 0.0014%	250.000mg	8/2/2024 9:50:43 AM	TC: Out of the calibrated ranges
K2407891-007	TC: 0.41%	250.000mg	8/2/2024 9:59:07 AM	
K2407891-007D	TC: 0.40%	250.000mg	8/2/2024 10:08:31 AM	
K2407891-007TR	TC: 0.41%	250.000mg	8/2/2024 10:18:10 AM	
K2407891-007MS	TC: 2.87%	125.300mg	8/2/2024 10:28:06 AM	
K2407891-007MSD	TC: 2.80%	125.000mg	8/2/2024 10:37:39 AM	
K2407891-011	TC: 0.049%	250.300mg	8/2/2024 10:47:25 AM	
K2407891-012	TC: 0.41%	250.000mg	8/2/2024 10:56:10 AM	
K2407891-013	TC: 0.11%	250.600mg	8/2/2024 11:05:35 AM	
CCV	TC: 12.22% 102%	25.600mg	8/2/2024 11:14:30 AM	
CCB	TC: 0.00000%	250.000mg	8/2/2024 11:23:43 AM	TC: Out of the calibrated ranges
K2407891-014	TC: 0.39%	250.300mg	8/2/2024 11:30:36 AM	
K2407895-001	TC: 0.42%	250.000mg	8/2/2024 11:40:34 AM	
K2407895-002	TC: 0.20%	250.000mg	8/2/2024 11:49:38 AM	
K2407895-003	TC: 0.088%	250.000mg	8/2/2024 11:58:14 AM	
K2407895-004	TC: 0.28%	250.000mg	8/2/2024 12:07:06 PM	
K2407895-005	TC: 0.27%	250.400mg	8/2/2024 12:15:57 PM	
K2407895-006	TC: 0.25%	250.300mg	8/2/2024 12:25:27 PM	
K2407895-007	TC: 4.05%	150.000mg	8/2/2024 12:34:56 PM	
K2407895-008	TC: 2.76%	150.000mg	8/2/2024 12:43:45 PM	
K2407895-009	TC: 1.03%	150.100mg	8/2/2024 12:53:31 PM	

AR 8/2/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

AnalysisGroup

AnalysisGroup: % TOC 2024E

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.22% 102%	25.500mg	8/2/2024 1:03:01 PM	
CCB	TC: 0.00000%	250.000mg	8/2/2024 1:11:53 PM	TC: Out of the calibrated ranges
K2407895-013	TC: 0.34%	250.100mg	8/2/2024 1:19:18 PM	
CCV	TC: 12.23% 102%	25.200mg	8/2/2024 1:28:47 PM	
CCB	TC: 0.00006%	250.000mg	8/2/2024 1:38:01 PM	TC: Out of the calibrated ranges

8/2/24

Service Request: K2407891

Date Weighed: 8/2/2024

Analyst: AEM

Method: 9060 TOC Modified

Analysis: Total Organic Carbon in Soil

Prep Run / Run # 442523/442536
849441

Sample Position	Sample ID	Weight (mg)
1	Clean	NA
2	CCV	25.7
3	CCB	250.0
4	LCS	250.8
5	MB	250.0
6	K2407891-007	250.0
7	K2407891-007D	250.0
8	K2407891-007TR	250.0
9	K2407891-007MS	125.3
10	K2407891-007MSD	125.0
11	K2407891-011	250.3
12	K2407891-012	250.0
13	K2407891-013	250.6
14	CCV	25.6
15	CCB	250.0
16	K2407891-014	250.3
17	K2407895-001	250.0
18	K2407895-002	250.0
19	K2407895-003	250.0
20	K2407895-004	250.0
21	K2407895-005	250.4
22	K2407895-006	250.3
23	K2407895-007 ✱	150.0
24	K2407895-008 ✱	150.0

Sample Position	Sample ID	Weight (mg)
25	K2407895-009 ✱	150.1
26	CCV	25.5
27	CCB	250.0
28	K2407895-013	250.1
29	CCV	25.2
30	CCB	250.0
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		

MS CaCO3 (mg)	K2407891-007MS	25.7
MSD CaCO3 (mg)	K2407891-007MSD	25.2

✱ - High organic content

Equipment: K-TOC-04

Calibration Expires: 3/14/25

Balance ID: K-BALANCE-38

HCL ID: 19-GEN-12-9-F, Exp: 1/29/25

Oven ID: K-OVEN-11

Thermometer ID: K-OVEN-11

CCV: CaCO3, JT Baker, ID: 19-GEN-13-71-A, Lot # 228036, Exp: 2/20/26, TV = 12.0 % C

LCS/SRM: NIST SRM, Lot # 1941b, Organics in Marine Sediment, ID: 19-GEN-13-97-J, Exp: 9/14/32, TV = 2.99 % TOC

Calibration QC Check

AnalysisGroup

AnalysisGroup: % TOC 2024b

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 2/23/2024 5:07:30 PM
Last modification: 3/15/2024 2:02:58 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
ICV - 25mg	TC: 11.81%	25.200mg	3/15/2024 12:12:46 PM	
ICV - 100mg	TC: 11.99%	100.300mg	3/15/2024 12:22:18 PM	
ICB	TC: 0.0014%	250.000mg	3/15/2024 12:32:34 PM	TC: Out of the calibrated ranges
CCV	TC: 11.85%	25.100mg	3/15/2024 12:41:07 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 12:50:16 PM	TC: Out of the calibrated ranges
LCS	TC: 3.14%	250.300mg	3/15/2024 12:58:11 PM	
DLCS	TC: 3.12%	250.300mg	3/15/2024 1:09:41 PM	
MB	TC: 0.0053%	250.000mg	3/15/2024 1:20:59 PM	TC: Out of the calibrated ranges
LOQ - 0.1% C	TC: 0.099%	253.300mg	3/15/2024 1:29:28 PM	
LOD - 0.01% C	TC: 0.014%	251.100mg	3/15/2024 1:37:55 PM	
CCV	TC: 11.90%	25.200mg	3/15/2024 1:46:25 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 1:55:32 PM	TC: Out of the calibrated ranges

ICV: 19-GEN-13-94-A (TV = 12% C)
CCV: 19-GEN-13-71-A (TV = 12% C)
LCS: 19-GEN-13-97-J (TV = 2.99% C / Toc)
LOQ: 19-GEN-12-7-G (TV = 0.1% C)
LOD: 19-GEN-12-7-H (TV = 0.01% C)

MB/LCS/DLCS → Acidified w/ 19-GEN-12-8-K

DAB 3/15/24

Method

Method: TOC by Manual Acidification - 3/14/24 **Version** 3

Created on: 3/14/2024 1:39:46 PM **of:** User
Last modification: 3/14/2024 5:28:48 PM **of:** User

Status: authorized
State: solid
Furnace: Ceramic tube (CS) - horizontal

Determinations:
Determinations: 1 - 1
Calculation algorithm: Conc_solid_EA4000_%
Operands:
Weight 1mg

Process:
FPG EA4000 (Default)
Furnace temperature 1100°C

Detection:

	TC
Detector	C_C201
Maximum integration time	600s
Stability	3
Start	0.12ppm
Threshold	5ppm

CalibrationData:

Calibration parameters TC		**[CR1]3,932AU - 47,966AU**	**[CR2]47,966AU - 3,627,304AU**
Type		Measurement	Measurement
Linked on		3/14/2024	3/14/2024
Name		Cal_TOC by Manual Acidification - 3/14/24_20240314_161842	Cal_TOC by Manual Acidification - 3/14/24_20240314_142421
Regression	**Type**	linear	linear
	K0	-3.118e+0	2.144e+1
	K1	6.357e-3	6.62e-3
Daily factor		1	1
	Type	Default	Default
	Date	3/14/2024	3/14/2024

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1

Calibration of: 3/14/2024 2:34:16 PM **of:** User
Last modification: 3/14/2024 3:51:20 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.62e-3*I+2.144e+1
K0: 2.144e+1
K1: 6.62e-3
Calibration range: 42,076AU - 3,627,304AU

Residual standard deviation: 10,941AU
Method standard deviation: 72.44211
Method variation coefficient: 0.97368%
Quality of replicates: 0.99994
Correlation coefficient: 0.99997

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 150.59µg
Identification limit: 301.18µg
Quantification limit: 560.69µg

Constant concentration: 12.00%

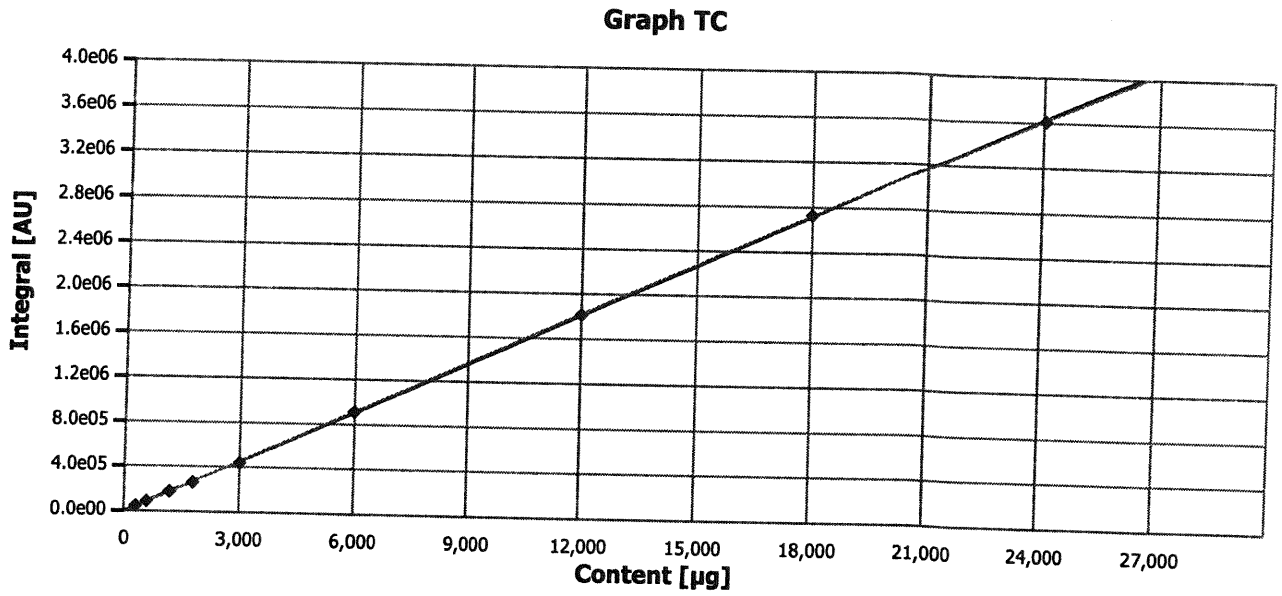
Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 2.500mg	48,075AU	13.59%	13.2%	0.000AU
2	1/1	Weight: 5.200mg	90,273AU	11.91%	-0.79%	0.000AU
3	1/1	Weight: 10.200mg	177,764AU	11.75%	-2.10%	0.000AU
4	1/1	Weight: 15.100mg	262,109AU	11.63%	-3.05%	0.000AU
5	1/1	Weight: 24.900mg	441,009AU	11.81%	-1.57%	0.000AU
6	1/1	Weight: 50.100mg	912,060AU	12.10%	0.79%	0.000AU
7	1/1	Weight: 99.900mg	1,812,969AU	12.04%	0.30%	0.000AU
8	1/1	Weight: 149.800mg	2,729,736AU	12.08%	0.65%	0.000AU
9	1/1	Weight: 200.300mg	3,610,903AU	11.95%	-0.45%	0.000AU

Calcium Carbonate ID: 19-GEN-13-71-A (TV= 12% C)

DAB 3/15/24

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1



Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1

Calibration of: 3/14/2024 4:26:04 PM **of:** User
Last modification: 3/14/2024 5:27:01 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.357e-3*I-3.118e+0
K0: -3.118e+0
K1: 6.357e-3
Calibration range: 3,932AU - 47,966AU

Residual standard deviation: 1,350AU
Method standard deviation: 8.63664
Method variation coefficient: 5.99715%
Quality of replicates: 0.99354
Correlation coefficient: 0.99676

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 20.04µg
Identification limit: 40.09µg
Quantification limit: 69.61µg

Constant concentration: 0.100%

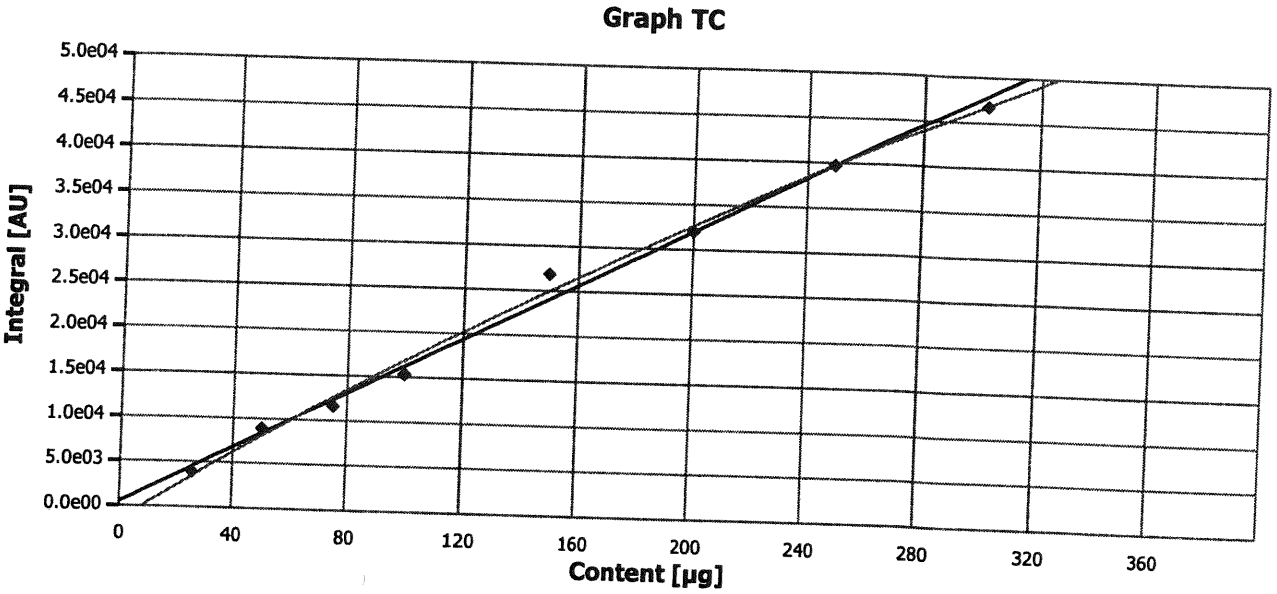
Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 25.400mg	3,932AU	0.086%	-13.9%	0.000AU
2	1/1	Weight: 50.300mg	8,913AU	0.11%	6.44%	0.000AU
3	1/1	Weight: 75.000mg	11,596AU	0.094%	-5.87%	0.000AU
4	1/1	Weight: 99.800mg	15,331AU	0.095%	-5.47%	0.000AU
5	1/1	Weight: 149.900mg	26,864AU	0.11%	11.8%	0.000AU
6	1/1	Weight: 200.100mg	32,001AU	0.10%	0.11%	0.000AU
7	1/1	Weight: 249.800mg	39,745AU	0.100%	-0.11%	0.000AU
8	1/1	Weight: 301.800mg	46,777AU	0.097%	-2.50%	0.000AU

KHP (0.1% C) ID: 19-GEN-12-7-6

DAB 3/15/24

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1



Work Request # K2407891, K2407895

Date Analyzed: 8/5/24

Analyst: ARun

Run # 849463

Analysis: TOC soil PSEP

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	yes/no/(NA)
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

Final Approved by: RRM Date: 8/5/24

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849463 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407891-001	Carbon, Total Organic (TOC)	N/A		Soil	1.28 Percent	250.5 mg	1.28 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-002	Carbon, Total Organic (TOC)	N/A		Soil	0.80 Percent	250 mg	0.80 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-003	Carbon, Total Organic (TOC)	N/A		Soil	0.71 Percent	250.2 mg	0.71 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-004	Carbon, Total Organic (TOC)	N/A		Soil	0.74 Percent	250.1 mg	0.74 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-005	Carbon, Total Organic (TOC)	N/A		Soil	0.79 Percent	250 mg	0.79 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-006	Carbon, Total Organic (TOC)	N/A		Soil	0.34 Percent	250.2 mg	0.34 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-008	Carbon, Total Organic (TOC)	N/A		Soil	0.34 Percent	250 mg	0.34 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-009	Carbon, Total Organic (TOC)	N/A		Soil	1.38 Percent	250.5 mg	1.38 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-010	Carbon, Total Organic (TOC)	N/A		Soil	2.03 Percent	250.7 mg	2.03 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407895-010	Carbon, Total Organic (TOC)	N/A		Soil	0.56 Percent	250.3 mg	0.56 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407895-011	Carbon, Total Organic (TOC)	N/A		Soil	0.42 Percent	250 mg	0.42 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407895-012	Carbon, Total Organic (TOC)	N/A		Soil	0.54 Percent	250.1 mg	0.54 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
KQ2411984-01	Carbon, Total Organic (TOC)	DUP	K2407891-001	Soil	1.28 Percent	250.4 mg	1.28 Percent	1	0.005	0.10		<1	8/5/24 12:06:49	N	IV
KQ2411984-02	Carbon, Total Organic (TOC)	TRP	K2407891-001	Soil	1.30 Percent	250.1 mg	1.30 Percent	1	0.005	0.10		<1	8/5/24 12:06:49	N	IV
KQ2411984-03	Carbon, Total Organic (TOC)	MS	K2407891-001	Soil	3.65 Percent	125 mg	3.65 Percent	1	0.005	0.10	99		8/5/24 12:06:49	N	IV
KQ2411984-04	Carbon, Total Organic (TOC)	DMS	K2407891-001	Soil	3.62 Percent	125 mg	3.62 Percent	1	0.005	0.10	97	2	8/5/24 12:06:49	N	IV
KQ2411984-05	Carbon, Total Organic (TOC)	LCS		Soil	3.22 Percent	250.2 mg	3.22 Percent	1	0.005	0.10	108		8/5/24 12:06:49	N	IV
KQ2411984-06	Carbon, Total Organic (TOC)	MB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV
KQ2411984-07	Carbon, Total Organic (TOC)	CCV		Soil	12.21 Percent	25 mg	12.2 Percent	1			102%		8/5/24 12:06:49	N	IV
KQ2411984-08	Carbon, Total Organic (TOC)	CCV		Soil	12.14 Percent	25.3 mg	12.1 Percent	1			101%		8/5/24 12:06:49	N	IV
KQ2411984-09	Carbon, Total Organic (TOC)	CCV		Soil	12.21 Percent	25 mg	12.2 Percent	1			102%		8/5/24 12:06:49	N	IV
KQ2411984-10	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV
KQ2411984-11	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

8/5/24

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849463 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2411984-12	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV

AMcn 8/5/24

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

AnalysisGroup

AnalysisGroup: % TOC 2024E

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 7/12/2024 11:11:53 AM
Last modification: 8/5/2024 4:44:44 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.21% 102%	25.000mg	8/5/2024 12:06:49 PM	
CCB	TC: 0.00000%	250.000mg	8/5/2024 12:16:13 PM	TC: Out of the calibrated ranges
LCS	TC: 3.22% 108%	250.200mg	8/5/2024 12:23:59 PM	
MB	TC: 0.00000%	250.000mg	8/5/2024 12:34:43 PM	TC: Out of the calibrated ranges
K2407891-001	TC: 1.28%	250.500mg	8/5/2024 12:41:44 PM	
K2407891-001D	TC: 1.28%	250.400mg	8/5/2024 12:52:57 PM	
K2407891-001TR	TC: 1.30%	250.100mg	8/5/2024 1:04:20 PM	
K2407891-001MS	TC: 3.65%	125.000mg	8/5/2024 1:14:27 PM	
K2407891-001MSD	TC: 3.62%	125.000mg	8/5/2024 1:24:55 PM	
K2407891-002	TC: 0.80%	250.000mg	8/5/2024 1:35:06 PM	
K2407891-003	TC: 0.71%	250.200mg	8/5/2024 1:45:31 PM	
K2407891-004	TC: 0.74%	250.100mg	8/5/2024 1:55:21 PM	
CCV	TC: 12.14% 101%	25.300mg	8/5/2024 2:05:29 PM	
CCB	TC: 0.00000%	250.000mg	8/5/2024 2:14:57 PM	TC: Out of the calibrated ranges
K2407891-005	TC: 0.79%	250.000mg	8/5/2024 3:03:44 PM	
K2407891-006	TC: 0.34%	250.200mg	8/5/2024 3:14:24 PM	
K2407891-008	TC: 0.34%	250.000mg	8/5/2024 3:24:32 PM	
K2407891-009	TC: 1.38%	250.500mg	8/5/2024 3:33:36 PM	
K2407891-010	TC: 2.03%	250.700mg	8/5/2024 3:44:45 PM	
K2407895-010	TC: 0.56%	250.300mg	8/5/2024 3:56:00 PM	
K2407895-011	TC: 0.42%	250.000mg	8/5/2024 4:06:38 PM	
K2407895-012	TC: 0.54%	250.100mg	8/5/2024 4:16:55 PM	
CCV	TC: 12.21% 102%	25.000mg	8/5/2024 4:27:51 PM	
CCB	TC: 0.00000%	250.000mg	8/5/2024 4:37:03 PM	TC: Out of the calibrated ranges

AR 8/5/24

Service Request: K2407895

Date Weighed: 8/2/2024

Analyst: AEM

Method: 9060 TOC Modified

Analysis: Total Organic Carbon in Soil

Prep Run / Run # 442523/ 442536
849463

Sample Position	Sample ID	Weight (mg)
1	Clean	NA
2	CCV	25.0
3	CCB	250.0
4	LCS	250.2
5	MB	250.0
6	K2407891-001	250.5
7	K2407891-001D	250.4
8	K2407891-001TR	250.1
9	K2407891-001MS	125.0
10	K2407891-001MSD	125.0
11	K2407891-002	250.0
12	K2407891-003	250.2
13	K2407891-004	250.1
14	CCV	25.3
15	CCB	250.0
16	K2407891-005	250.0
17	K2407891-006	250.2
18	K2407891-008	250.0
19	K2407891-009	250.5
20	K2407891-010	250.7
21	K2407895-010	250.3
22	K2407895-011	250.0
23	K2407895-012	250.1
24	CCV	25.0

Sample Position	Sample ID	Weight (mg)
25	CCB	250.0
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		

AEM 8/5/24

MS CaCO3 (mg)	K2407891-001MS	25.0
MSD CaCO3 (mg)	K2407891-001MSD	25.1

Equipment: K-TOC-04

Calibration Expires: 3/14/25

Balance ID: K-BALANCE-38

HCL ID: 19-GEN-12-9-F, Exp: 1/29/25

Oven ID: K-OVEN-11

Thermometer ID: K-OVEN-11

CCV: CaCO3, JT Baker, ID: 19-GEN-13-71-A, Lot # 228036, Exp: 2/20/26, TV = 12.0 % C

LCS/SRM: NIST SRM, Lot # 1941b, Organics in Marine Sediment, ID: 19-GEN-13-97-J, Exp: 9/14/32, TV = 2.99 % TOC

Calibration QC Check

AnalysisGroup

AnalysisGroup: % TOC 2024b

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 2/23/2024 5:07:30 PM
Last modification: 3/15/2024 2:02:58 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
ICV - 25mg	TC: 11.81%	25.200mg	3/15/2024 12:12:46 PM	
ICV - 100mg	TC: 11.99%	100.300mg	3/15/2024 12:22:18 PM	
ICB	TC: 0.0014%	250.000mg	3/15/2024 12:32:34 PM	TC: Out of the calibrated ranges
CCV	TC: 11.85%	25.100mg	3/15/2024 12:41:07 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 12:50:16 PM	TC: Out of the calibrated ranges
LCS	TC: 3.14%	250.300mg	3/15/2024 12:58:11 PM	
DLCS	TC: 3.12%	250.300mg	3/15/2024 1:09:41 PM	
MB	TC: 0.0053%	250.000mg	3/15/2024 1:20:59 PM	TC: Out of the calibrated ranges
LOQ - 0.1% C	TC: 0.099%	253.300mg	3/15/2024 1:29:28 PM	
LOD - 0.01% C	TC: 0.014%	251.100mg	3/15/2024 1:37:55 PM	
CCV	TC: 11.90%	25.200mg	3/15/2024 1:46:25 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 1:55:32 PM	TC: Out of the calibrated ranges

ICV: 19-GEN-13-94-A (TV = 12% C)
CCV: 19-GEN-13-71-A (TV = 12% C)
LCS: 19-GEN-13-97-J (TV = 2.99% C / Toc)
LOQ: 19-GEN-12-7-G (TV = 0.1% C)
LOD: 19-GEN-12-7-H (TV = 0.01% C)

MB/LCS/DLCS → Acidified w/ 19-GEN-12-8-K

DAB 3/15/24

Method

Method: TOC by Manual Acidification - 3/14/24 **Version** 3

Created on: 3/14/2024 1:39:46 PM **of:** User
Last modification: 3/14/2024 5:28:48 PM **of:** User

Status: authorized
State: solid
Furnace: Ceramic tube (CS) - horizontal

Determinations:
Determinations: 1 - 1
Calculation algorithm: Conc_solid_EA4000_%
Operands:
Weight 1mg

Process:
FPG EA4000 (Default)
Furnace temperature 1100°C

Detection:

	TC
Detector	C_C201
Maximum integration time	600s
Stability	3
Start	0.12ppm
Threshold	5ppm

CalibrationData:

Calibration parameters TC		**[CR1]3,932AU - 47,966AU**	**[CR2]47,966AU - 3,627,304AU**
Type		Measurement	Measurement
Linked on		3/14/2024	3/14/2024
Name		Cal_TOC by Manual Acidification - 3/14/24_20240314_161842	Cal_TOC by Manual Acidification - 3/14/24_20240314_142421
Regression	**Type**	linear	linear
	K0	-3.118e+0	2.144e+1
	K1	6.357e-3	6.62e-3
Daily factor		1	1
	Type	Default	Default
	Date	3/14/2024	3/14/2024

Page 1 of 1

DMB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1

Calibration of: 3/14/2024 2:34:16 PM **of:** User
Last modification: 3/14/2024 3:51:20 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.62e-3*I+2.144e+1
K0: 2.144e+1
K1: 6.62e-3
Calibration range: 42,076AU - 3,627,304AU

Residual standard deviation: 10,941AU
Method standard deviation: 72.44211
Method variation coefficient: 0.97368%
Quality of replicates: 0.99994
Correlation coefficient: 0.99997
Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 150.59µg
Identification limit: 301.18µg
Quantification limit: 560.69µg

Constant concentration: 12.00%

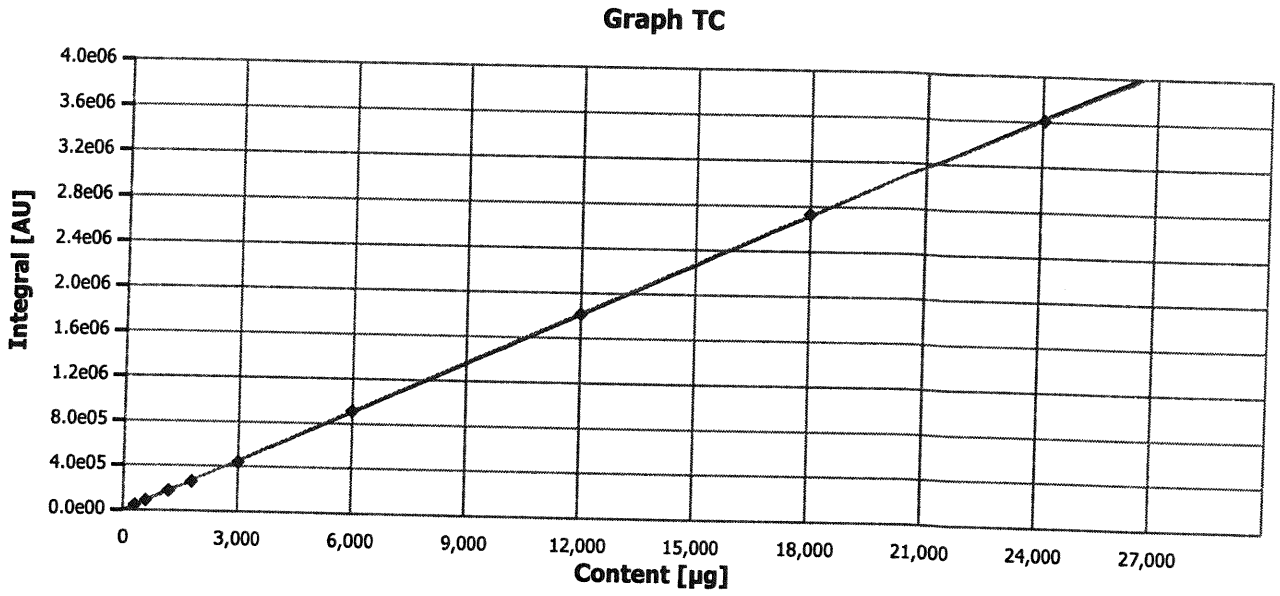
Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 2.500mg	48,075AU	13.59%	13.2%	0.000AU
2	1/1	Weight: 5.200mg	90,273AU	11.91%	-0.79%	0.000AU
3	1/1	Weight: 10.200mg	177,764AU	11.75%	-2.10%	0.000AU
4	1/1	Weight: 15.100mg	262,109AU	11.63%	-3.05%	0.000AU
5	1/1	Weight: 24.900mg	441,009AU	11.81%	-1.57%	0.000AU
6	1/1	Weight: 50.100mg	912,060AU	12.10%	0.79%	0.000AU
7	1/1	Weight: 99.900mg	1,812,969AU	12.04%	0.30%	0.000AU
8	1/1	Weight: 149.800mg	2,729,736AU	12.08%	0.65%	0.000AU
9	1/1	Weight: 200.300mg	3,610,903AU	11.95%	-0.45%	0.000AU

Calcium Carbonate ID: 19-GEN-13-71-A (TV=12% C)

DAB 3/15/24

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1



Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1

Calibration of: 3/14/2024 4:26:04 PM **of:** User
Last modification: 3/14/2024 5:27:01 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.357e-3*I-3.118e+0
K0: -3.118e+0
K1: 6.357e-3
Calibration range: 3,932AU - 47,966AU

Residual standard deviation: 1,350AU
Method standard deviation: 8.63664
Method variation coefficient: 5.99715%
Quality of replicates: 0.99354
Correlation coefficient: 0.99676

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 20.04µg
Identification limit: 40.09µg
Quantification limit: 69.61µg

Constant concentration: 0.100%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 25.400mg	3,932AU	0.086%	-13.9%	0.000AU
2	1/1	Weight: 50.300mg	8,913AU	0.11%	6.44%	0.000AU
3	1/1	Weight: 75.000mg	11,596AU	0.094%	-5.87%	0.000AU
4	1/1	Weight: 99.800mg	15,331AU	0.095%	-5.47%	0.000AU
5	1/1	Weight: 149.900mg	26,864AU	0.11%	11.8%	0.000AU
6	1/1	Weight: 200.100mg	32,001AU	0.10%	0.11%	0.000AU
7	1/1	Weight: 249.800mg	39,745AU	0.100%	-0.11%	0.000AU
8	1/1	Weight: 301.800mg	46,777AU	0.097%	-2.50%	0.000AU

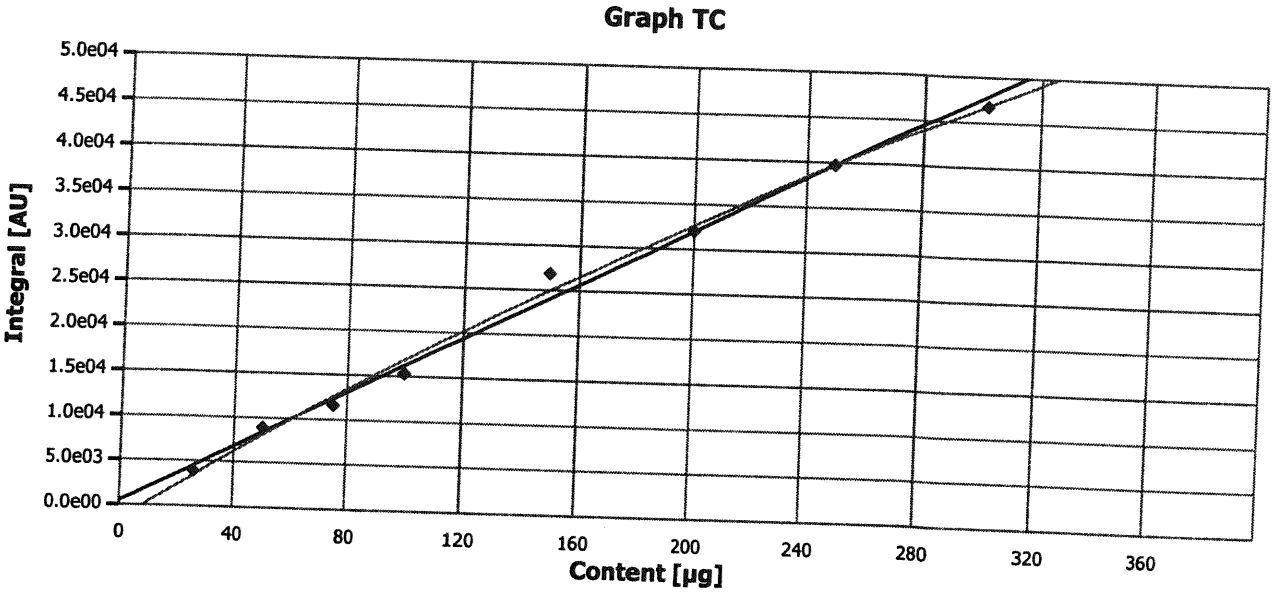
KHP (0.1% C) ID: 19-GEN-12-7-6

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 442535
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 8/8/24 09:32

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411923-05	MB		200.8/Metals T		Solid	1.0000g	100.00mL	10% HNO3 10% HCl
2	KQ2411923-06	LCS		200.8/Metals T		Solid	1.0000g	100.00mL	10% HNO3 10% HCl
3	K2407895-001	2024 KGM UJC S1	.02	200.8/Metals T		Soil	1.012g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
4	KQ2411923-01	K2407895-001 DUP	.02	200.8/Metals T		Solid	1.059g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
5	KQ2411923-02	K2407895-001 MS	.02	200.8/Metals T		Solid	1.062g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
6	K2407895-002	2024 KGM UJC S2	.02	200.8/Metals T		Soil	1.356g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
7	K2407895-003	2024 KGM UJC S3	.02	200.8/Metals T		Soil	1.315g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
8	K2407895-004	2024 KGM USH S1	.02	200.8/Metals T		Soil	1.031g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
9	K2407895-005	2024 KGM USH S2	.02	200.8/Metals T		Soil	1.385g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
10	K2407895-006	2024 KGM USH S3	.02	200.8/Metals T		Soil	1.214g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
11	K2407895-007	2024 KGMEFSC S1	.02	200.8/Metals T		Soil	1.267g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
12	K2407895-008	2024 KGMEFSC S2	.02	200.8/Metals T		Soil	1.104g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
13	K2407895-009	2024 KGMEFSC S3	.02	200.8/Metals T		Soil	1.126g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
14	K2407895-010	2024 KGM LSC S1	.02	200.8/Metals T		Soil	1.264g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
15	K2407895-011	2024 KGM LSC S2	.02	200.8/Metals T		Soil	1.361g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
16	K2407895-012	2024 KGM LSC S3	.02	200.8/Metals T		Soil	1.256g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
17	K2407895-013	2024 KGM LSH S1	.02	200.8/Metals T		Soil	1.197g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
18	KQ2411923-03	K2407895-013 DUP	.02	200.8/Metals T		Solid	1.164g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
19	KQ2411923-04	K2407895-013 MS	.02	200.8/Metals T		Solid	1.197g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl

Spiking Solutions

Name: K-MET SS1 Inventory ID 234271 Logbook Ref: MET4-59-L Expires On: 03/22/2025

KQ2411923-02 2.00mL KQ2411923-04 2.00mL KQ2411923-06 2.00mL

Name: K-MET SS3 Inventory ID 234899 Logbook Ref: MET4-62-A Expires On: 09/30/2024

KQ2411923-02 1.00mL KQ2411923-04 1.00mL KQ2411923-06 1.00mL

Name: K-MET SS4 Inventory ID 235720 Logbook Ref: MET4-67-G Expires On: 10/20/2024

KQ2411923-02 1.00mL KQ2411923-04 1.00mL KQ2411923-06 1.00mL

Preparation Materials

K-MET 100ml Centrifuge Tube	L223102601 (235884)	K-MET HCL	22K0862007 (233698)	K-MET H2O2	63230401 (236526)
K-MET HNO3	23H1462003 (236022)	K-METPTFE Boiling chips	29036769 (234578)		

Preparation Information Benchsheet

Prep Run#: 442535
Team: Metals/CLUKKEN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 8/8/24 09:32

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/8/24 09:32	Started:	8/8/24 09:32
Finished:	8/8/24 13:39	Finished:	8/8/24 13:39
By:	CLUKKEN	By:	CLUKKEN
Comments		Comments	

Preparation Equipment

K-BlockDigester-02	Digestion	IR Thermometer ID: IR03		K-BlockDigester-02	Digestion	Temperature	95.6 deg C
K-BlockDigester-02	Digestion	Temperature Check Location	21	K-DGV 1000-5000	Digestion		
K-DGV 100-1000B	Digestion						

Comments: R1 15 min R2 120 min R3 15 min

Reviewed By: _____ Date: 8.9.24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1 *** Add after HNO3 and before ALS-89 when making the solution	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
	Mn	100*	1000ml	50	
	Ni	100*	1000ml	50	
	Sb***	50.0	1000ml	50	
	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 442535
Team: Metals/TRICKMAN
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Draft
Prep Date/Time: 8/1/24 12:10 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	KQ2411923-05	MB			200.8 / Metals T	Solid						
2	KQ2411923-06	LCS			200.8 / Metals T	Solid						
3	K2407895-001	2024 KGM UJC S1	.02		200.8 / Metals T	Soil						
4	KQ2411923-01	K2407895-001 DUP	.02		200.8 / Metals T	Solid						
5	KQ2411923-02	K2407895-001 MS	.02		200.8 / Metals T	Solid						
6	K2407895-002	2024 KGM UJC S2	.02		200.8 / Metals T	Soil						
7	K2407895-003	2024 KGM UJC S3	.02		200.8 / Metals T	Soil						
8	K2407895-004	2024 KGM USH S1	.02		200.8 / Metals T	Soil						
9	K2407895-005	2024 KGM USH S2	.02		200.8 / Metals T	Soil						
10	K2407895-006	2024 KGM USH S3	.02		200.8 / Metals T	Soil						
11	K2407895-007	2024 KGMEFSC S1	.02		200.8 / Metals T	Soil						
12	K2407895-008	2024 KGMEFSC S2	.02		200.8 / Metals T	Soil						
13	K2407895-009	2024 KGMEFSC S3	.02		200.8 / Metals T	Soil						
14	K2407895-010	2024 KGM LSC S1	.02		200.8 / Metals T	Soil						
15	K2407895-011	2024 KGM LSC S2	.02		200.8 / Metals T	Soil						
16	K2407895-012	2024 KGM LSC S3	.02		200.8 / Metals T	Soil						
17	K2407895-013	2024 KGM LSH S1	.02		200.8 / Metals T	Soil						
18	KQ2411923-03	K2407895-013 DUP	.02		200.8 / Metals T	Solid						
19	KQ2411923-04	K2407895-013 MS	.02		200.8 / Metals T	Solid						

Comments: 2mL 551, 1mL 553, 554 H-BD-2 95.6 TL 21
R1- 9:32-9:47 R2 10:03-10:48 H_2O_2 - 11:50-13:05 R3- 12:24-13:39

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442535 **Container Lot No:** 2108282 **Prep Due Date:** Aug-07-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407895-001	.02	Metals T : 200.8/	1.012g		TRICKMAN K-BALANCE-55
2	K2407895-001 DUP KQ2411923-01	.02	Metals T : 200.8/	1.059g		TRICKMAN K-BALANCE-55
3	K2407895-001 MS KQ2411923-02	.02	Metals T : 200.8/	1.062g		TRICKMAN K-BALANCE-55
4	K2407895-002	.02	Metals T : 200.8/	1.356g		TRICKMAN K-BALANCE-55
5	K2407895-003	.02	Metals T : 200.8/	1.315g		TRICKMAN K-BALANCE-55
6	K2407895-004	.02	Metals T : 200.8/	1.031g		TRICKMAN K-BALANCE-55
7	K2407895-005	.02	Metals T : 200.8/	1.385g		TRICKMAN K-BALANCE-55
8	K2407895-006	.02	Metals T : 200.8/	1.214g		TRICKMAN K-BALANCE-55
9	K2407895-007	.02	Metals T : 200.8/	1.267g		TRICKMAN K-BALANCE-55
10	K2407895-008	.02	Metals T : 200.8/	1.104g		TRICKMAN K-BALANCE-55
11	K2407895-009	.02	Metals T : 200.8/	1.126g		TRICKMAN K-BALANCE-55
12	K2407895-010	.02	Metals T : 200.8/	1.264g		TRICKMAN K-BALANCE-55
13	K2407895-011	.02	Metals T : 200.8/	1.361g		TRICKMAN K-BALANCE-55
14	K2407895-012	.02	Metals T : 200.8/	1.256g		TRICKMAN K-BALANCE-55
15	K2407895-013	.02	Metals T : 200.8/	1.197g		TRICKMAN K-BALANCE-55
16	K2407895-013 DUP KQ2411923-03	.02	Metals T : 200.8/	1.164g		TRICKMAN K-BALANCE-55
17	K2407895-013 MS KQ2411923-04	.02	Metals T : 200.8/	1.197g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time:	Received By:	Date/Time:
	8-6-24 07:00		8/8/24 9:32

Service Request # K2408064, K2408179, K2407895, K2407891,
Instrument ID # K-ICP-MS-05
Calibration 081424AICPMS05
ALS LIMS Run # 850554
Cal Std: MS34-18-E ICSA Std: MS34-16-H
ICV Std: MS34-18-F ICSAB Std: MS34-16-I
LLICV Std: MS34-12-B
I.S. Solution: MS33-40-A
EPA Tune Solution: MS33-39-E
Pipette IDs: 38480473, 42390072, 44183886

ICP-MS Data Review Form

	Yes	No	NA
1. Appropriate standardization completed	X		
2. ICV in control (+/- 10%)	X		
3. CCV's in control (+/- 10%)	X		
4. ICB/CCB's below MRL	X		
5. LLICV standard analyzed and in control	X		
6. ICS standards within 20% of true value			X
7. All analytes within instrument linear range	X		
8. Adequate rinse out time allowed	X		
9. Internal standards in control	X		
10. Interferences checked	X		
11. Was the run terminated? If so, why.		X	

See Benchsheet exception report for sample batch QC information.
Comments:

Prep Batch: 442765, 442913, 442535, 442521

Primary Review by JC Date 8/14/24

Secondary Review by RRM Date 8/15/24

R:\ICP\MISC\Document Control\K-ICPMS-05 Review Sheet.doc

Data Review Form

Instrument ID#: **K-ICP-MS-05**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-MS-05 (Agilent)\081424A.csv**
RUNNO: **850554**

K2407891

K2407891-001DUP - Metals T -
DUP RPD
200.8/Metals T - 52 Cr [He] - RPD: 34 Limit: 30
K2407891-001MS - Metals T -
MS Recovery
200.8/Metals T - 52 Cr [He] - Recovery: 255 Limits: 70 - 130
K2407891-014MS - Metals T -
MS Recovery
200.8/Metals T - 65 Cu [He] - Recovery: 53 Limits: 70 - 130

K2407895 Being redigested for Pb c. 1 GPM in MB

K2407895-001DUP - Metals T -
DUP RPD
200.8/Metals T - 52 Cr [He] - RPD: 47 Limit: 30
K2407895-001MS - Metals T -
MS Recovery
200.8/Metals T - 52 Cr [He] - Recovery: 133 Limits: 70 - 130
K2407895-013DUP - Metals T -
DUP RPD
200.8/Metals T - 75 As [He] - RPD: 53 Limit: 30

K2408064

No exceptions to report.

K2408179

No exceptions to report.

Primary Approver: JC 8/15/24
Secondary Approver: RRM 8/15/24

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
1			001CALB.	2024-08-14 08:00:52	CalBlk		Prime		2
2			002CALB.	2024-08-14 08:03:29	CalBlk		Rinse		3
3			003CALB.	2024-08-14 08:06:04	CalBlk	1	Blank		3
4			004CALS.	2024-08-14 08:08:39	CalStd	2	25ppb		2
5			005_ICV.d	2024-08-14 08:13:17	ICV		ICV		1103
6			006_CCV.	2024-08-14 08:15:51	CCV		CCV		2
7			007_ICB.d	2024-08-14 08:18:25	ICB		ICB		3
8			008_CCB.	2024-08-14 08:21:01	CCB		CCB		3
9			009LICV.d	2024-08-14 08:23:37	LLICV		LLICVS		1104
10			010SMPL.	2024-08-14 08:26:12	Sample		MoSTD		1107
11			011_PB.d	2024-08-14 08:30:33	PB		KQ2412146-03	5X	2101
12			012_LCS.d	2024-08-14 08:33:08	LCS		KQ2412146-04	20X	2102
13			013_ARF.d	2024-08-14 08:35:42	AllRef		K2408064-001	5X	2103
14			014_Dup.d	2024-08-14 08:38:14	Dup		KQ2412146-01	5X	2104
15			015_Spk.d	2024-08-14 08:40:46	Spike		KQ2412146-02	5X	2105
16			016_CCV.	2024-08-14 08:44:12	CCV		CCV		2
17			017_CCB.	2024-08-14 08:52:02	CCB		CCB		3
18			018_PB.d	2024-08-14 08:54:37	PB		KQ2412305-03	5X	2201
19			019_LCS.d	2024-08-14 08:57:13	LCS		KQ2412305-04	20X	2202
20			020_ARF.d	2024-08-14 08:59:47	AllRef		K2408179-001	5X	2203
21			021_Dup.d	2024-08-14 09:02:21	Dup		KQ2412305-01	5X	2204
22			022_Spk.d	2024-08-14 09:04:55	Spike		KQ2412305-02	5X	2205
23			023SMPL.	2024-08-14 09:07:27	Sample		K2408179-002	5X	2206
24			024SMPL.	2024-08-14 09:10:00	Sample		K2408179-003	5X	2207
25			025_CCV.	2024-08-14 09:15:37	CCV		CCV		2
26			026_CCB.	2024-08-14 09:18:12	CCB		CCB		3
27			027_PB.d	2024-08-14 09:20:47	PB		KQ2411923-05	5X	2301
28			028_LCS.d	2024-08-14 09:23:23	LCS		KQ2411923-06	20X	2302
29			029_ARF.d	2024-08-14 09:25:57	AllRef		K2407895-001	5X	2303
30			030_Dup.d	2024-08-14 09:28:31	Dup		KQ2411923-01	5X	2304
31			031_Spk.d	2024-08-14 09:31:06	Spike		KQ2411923-02	5X	2305
32			032_ARF.d	2024-08-14 09:33:36	AllRef		K2407895-013	5X	2306
33			033_Dup.d	2024-08-14 09:36:10	Dup		KQ2411923-03	5X	2307
34			034_Spk.d	2024-08-14 09:38:44	Spike		KQ2411923-04	5X	2308
35			035SMPL.	2024-08-14 09:41:14	Sample		K2407895-002	5X	2309
36			036SMPL.	2024-08-14 09:43:48	Sample		K2407895-003	5X	2310
37			037_CCV.	2024-08-14 09:46:22	CCV		CCV		2
38			038_CCB.	2024-08-14 09:48:57	CCB		CCB		3
39			040_CCB.	2024-08-14 10:35:58	CCB		CCB		3

8/14/24

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
40			041_CCB.	2024-08-14 10:39:26	CCB		CCB		3
41			042_PB.d	2024-08-14 10:42:01	PB		KQ2411923-05	5X	2301
42			043_LCS.d	2024-08-14 10:44:36	LCS		KQ2411923-06	20X	2302
43			044_ARF.d	2024-08-14 10:47:11	AllRef		K2407895-001	5X	2303
44			045_Dup.d	2024-08-14 10:49:45	Dup		KQ2411923-01	5X	2304
45			046_CCV.	2024-08-14 10:54:11	CCV		CCV		2
46			047_CCB.	2024-08-14 10:57:40	CCB		CCB		3
47			048_PB.d	2024-08-14 11:00:16	PB		KQ2411923-05	5X	2408
48			049SMPL.	2024-08-14 11:02:52	Sample		K2407895-004	5X	2311
49			050SMPL.	2024-08-14 11:05:27	Sample		K2407895-005	5X	2312
50			051SMPL.	2024-08-14 11:08:00	Sample		K2407895-006	5X	2401
51			052SMPL.	2024-08-14 11:10:35	Sample		K2407895-007	5X	2402
52			053SMPL.	2024-08-14 11:13:09	Sample		K2407895-008	5X	2403
53			054SMPL.	2024-08-14 11:15:43	Sample		K2407895-009	5X	2404
54			055SMPL.	2024-08-14 11:18:18	Sample		K2407895-010	5X	2405
55			056SMPL.	2024-08-14 11:20:52	Sample		K2407895-011	5X	2406
56			057SMPL.	2024-08-14 11:23:26	Sample		K2407895-012	5X	2407
57			058_CCV.	2024-08-14 11:26:01	CCV		CCV		2
58			059_CCB.	2024-08-14 11:28:36	CCB		CCB		3
59			060_PB.d	2024-08-14 11:31:11	PB		KQ2411912-05	5X	3101
60			061_LCS.d	2024-08-14 11:33:48	LCS		KQ2411912-06	20X	3102
61			062_ARF.d	2024-08-14 11:36:23	AllRef		K2407891-001	5X	3103
62			063_Dup.d	2024-08-14 11:38:58	Dup		KQ2411912-01	5X	3104
63			064_Spk.d	2024-08-14 11:41:32	Spike		KQ2411912-02	5X	3105
64			065_ARF.d	2024-08-14 11:44:02	AllRef		K2407891-014	5X	3106
65			066_Dup.d	2024-08-14 11:46:37	Dup		KQ2411912-03	5X	3107
66			067_Spk.d	2024-08-14 11:49:11	Spike		KQ2411912-04	5X	3108
67			068SMPL.	2024-08-14 11:51:42	Sample		K2407891-002	5X	3109
68			069SMPL.	2024-08-14 11:54:17	Sample		K2407891-003	5X	3110
69			070_CCV.	2024-08-14 11:57:24	CCV		CCV		2
70			071_CCB.	2024-08-14 11:59:58	CCB		CCB		3
71			072_PB.d	2024-08-14 12:06:43	PB		KQ2411912-05	5X	3101
72			073SMPL.	2024-08-14 12:09:19	Sample		K2407891-004	5X	3111
73			074SMPL.	2024-08-14 12:11:54	Sample		K2407891-005	5X	3112
74			075SMPL.	2024-08-14 12:14:29	Sample		K2407891-006	5X	3201
75			076SMPL.	2024-08-14 12:17:03	Sample		K2407891-007	5X	3202
76			077SMPL.	2024-08-14 12:19:39	Sample		K2407891-008	5X	3203
77			078SMPL.	2024-08-14 12:22:13	Sample		K2407891-009	5X	3204
78			079SMPL.	2024-08-14 12:24:48	Sample		K2407891-010	5X	3205

Sample

	Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
79		080SMPL.	2024-08-14 12:27:23	Sample		K2407891-011	5X	3206
80		081SMPL.	2024-08-14 12:29:58	Sample		K2407891-012	5X	3207
81		082_CCV.	2024-08-14 12:40:05	CCV		CCV		2
82		083_CCB.	2024-08-14 12:42:40	CCB		CCB		3
83		084SMPL.	2024-08-14 12:45:16	Sample		K2407891-013	5X	3208
84		085_CCV.	2024-08-14 12:53:17	CCV		CCV		2
85		086_CCB.	2024-08-14 12:55:52	CCB		CCB		3

Analyte

	Name	Mass	ISTD	Tune Mode	Conc.	Units	Replicate
1	Al	27	45	No Gas	0.1009	ug/l	3
2	Cr	52	72	He	-0.0037	ug/l	3
3	Cr	53	72	He	0.2260	ug/l	3
4	Ni	60	72	He	0.0032	ug/l	3
5	Ni	62	72	He	0.0032	ug/l	3
6	Cu	63	72	He	-0.0022	ug/l	3
7	Cu	65	72	He	-0.0050	ug/l	3
8	Zn	66	72	He	0.0347	ug/l	3
9	As	75	72	He	0.0188	ug/l	3
10	Se	77	72	H2	-0.7605	ug/l	3
11	Se	78	72	H2	0.0026	ug/l	3
12	Mo	95	115	He	0.0039	ug/l	3
13	Mo	98	115	He	0.0048	ug/l	3
14	Ag	107	115	He	0.0016	ug/l	3
15	Ag	109	115	He	0.0008	ug/l	3
16	Cd	111	115	He	0.0077	ug/l	3
17	Cd	114	115	He	0.0076	ug/l	3
18	[Pb]	206	175	He	0.0038	ug/l	3
19	[Pb]	207	175	He	0.0044	ug/l	3
20	Pb	208	175	He	0.0042	ug/l	3
21	Li	6		No Gas			3
22	Sc	45		No Gas			3
23	Sc	45		He			3
24	Ge	72		H2			3
25	Ge	72		He			3
26	In	115		He			3
27	Lu	175		He			3
28	Th	232		He			3

US EPA Tune Check Report

Operator Name	ALKLS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\081424.b
Acq. Date-Time	2024-08-14 06:53:12
Report Comment	ALS Tune
Instrument Name	G3281A JP13482848

[No Gas]

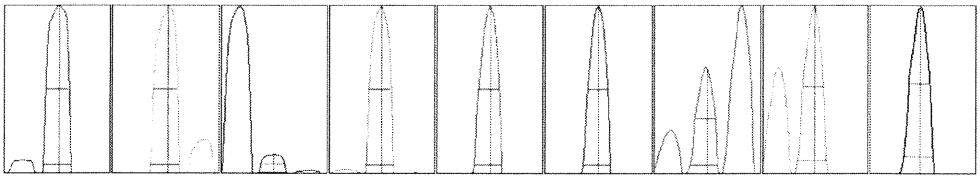
Sensitivity

Mass	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	83208.27	1.132	5.000	
9	23709.02	1.290	5.000	
24	165748.00	1.627	5.000	
59	385549.27	0.664	5.000	
115	627475.57	0.845	5.000	
140	672189.87	0.925	5.000	
208	331000.00	1.045	5.000	
209	521530.18	1.171	5.000	
238	673499.53	0.923	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	8213	8421	8378	8364	8228
9	2318	2384	2387	2394	2372
24	16109	16705	16798	16604	16658
59	38111	38732	38674	38695	38564
115	61960	62963	63260	63089	62466
140	66292	67729	67702	67496	66877
208	32538	33059	33148	33327	33428
209	51070	52361	52525	52479	52330
238	66243	67705	67553	67664	67584

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
7	13128.99	7.10	6.90 - 7.10		0.784		0.900
9	3811.60	9.10	8.90 - 9.10		0.783		0.900
24	26109.53	24.00	23.90 - 24.10		0.808		0.900

US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
59	63618.65	59.00	58.90 - 59.10		0.786		0.900
115	114566.61	115.05	114.90 - 115.10		0.776		0.900
140	125877.28	140.00	139.90 - 140.10		0.771		0.900
208	60819.80	208.00	207.90 - 208.10		0.780		0.900
209	96078.72	209.00	208.90 - 209.10		0.815		0.900
238	119556.59	237.95	237.90 - 238.10		0.838		0.900

Integration Time [sec]	0.1
Acquisition Time [sec]	268.4
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.57 L/min	Dilution Gas	0.50 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.76 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.9 V	Deflect	13.6 V
Extract 2	-175.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-75 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	126	Axis Gain	1.0004	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.08		

Hardware Settings

Torch

Torch H	0.0 mm	Torch V	0.8 mm		

EM

Discriminator	4.5 mV	Analog HV	1850 V	Pulse HV	1612 V

Calibration Blank Report

Sample Name	Blank
File Name	003CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:06:04
Sample Type	CalBlk
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	45	No Gas	7735.07	4.3
Se	77	72	H2	1560.74	4.2
Se	78	72	H2	25.67	23.8
Cr	52	72	He	730.02	4.6
Cr	53	72	He	352.23	8.0
Ni	60	72	He	136.67	23.3
Ni	62	72	He	25.56	71.8
Cu	63	72	He	263.34	19.0
Cu	65	72	He	142.22	17.6
Zn	66	72	He	115.56	24.0
As	75	72	He	17.33	29.6
Mo	95	115	He	27.78	30.2
Mo	98	115	He	35.56	14.3
Ag	107	115	He	32.22	12.0
Ag	109	115	He	23.33	57.2
Cd	111	115	He	3.33	45.8
Cd	114	115	He	24.50	5.4
[Pb]	206	175	He	125.56	18.1
[Pb]	207	175	He	88.89	12.1
Pb	208	175	He	461.12	7.2

3C
8/14/24

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	465634.11	1.1
Sc	45	No Gas	9033699.36	1.7
Ge	72	H2	2007352.98	1.7
Sc	45	He	207415.29	2.0
Ge	72	He	208403.74	0.5
In	115	He	2241849.28	1.8
Lu	175	He	5577447.69	1.4
Th	232	He	9174642.57	2.0

Calibration Standard Report

Sample Name 25ppb

File Name 004CALS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:08:39

Sample Type CalStd

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	45	No Gas	5732541.02	0.7
Se	77	72	H2	10735.72	1.4
Se	78	72	H2	29283.40	1.2
Cr	52	72	He	151222.19	0.6
Cr	53	72	He	19127.25	1.2
Ni	60	72	He	81781.41	0.2
Ni	62	72	He	12986.07	1.5
Cu	63	72	He	242207.82	0.8
Cu	65	72	He	120941.44	1.0
Zn	66	72	He	32988.46	1.1
As	75	72	He	20837.67	1.3
Mo	95	115	He	58957.72	1.3
Mo	98	115	He	100626.02	0.5
Ag	107	115	He	222750.79	0.6
Ag	109	115	He	218174.40	1.1
Cd	111	115	He	53817.44	0.7
Cd	114	115	He	141541.19	1.0
[Pb]	206	175	He	338781.08	0.8
[Pb]	207	175	He	286439.78	0.6
Pb	208	175	He	1334837.85	0.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	460596.84	2.4	465634.11	98.92	
Sc	45	No Gas	8981443.53	0.6	9033699.36	99.42	
Ge	72	H2	1990120.82	1.6	2007352.98	99.14	
Sc	45	He	205124.46	1.0	207415.29	98.9	
Ge	72	He	205116.69	0.5	208403.74	98.42	
In	115	He	2247532.19	1.4	2241849.28	100.25	
Lu	175	He	5581296.72	0.8	5577447.69	100.07	
Th	232	He	9268454.65	1.7	9174642.57	101.02	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	005_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:13:17
Sample Type	ICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	106.0779	ug/l	3.6	2405012.75	106.08	
Se	77	72	H2	24.7269	ug/l	2.7	10759.40	98.91	
Se	78	72	H2	24.6792	ug/l	1.8	29252.03	98.72	
Cr	52	72	He	10.2213	ug/l	0.7	62324.58	102.21	
Cr	53	72	He	9.9302	ug/l	1.0	7815.15	99.3	
Ni	60	72	He	26.1448	ug/l	1.3	85614.40	104.58	
Ni	62	72	He	26.2152	ug/l	0.4	13632.14	104.86	
Cu	63	72	He	12.8905	ug/l	0.5	125154.48	103.12	
Cu	65	72	He	12.9535	ug/l	0.6	62804.13	103.63	
Zn	66	72	He	25.8937	ug/l	0.4	34200.74	103.57	
As	75	72	He	25.2590	ug/l	1.4	21076.30	101.04	
Mo	95	115	He	25.2605	ug/l	1.2	120371.54	101.04	
Mo	98	115	He	25.6771	ug/l	1.4	208825.20	102.71	
Ag	107	115	He	12.8170	ug/l	1.0	230795.14	102.54	
Ag	109	115	He	12.7686	ug/l	1.1	225220.69	102.15	
Cd	111	115	He	13.4097	ug/l	1.1	29169.81	107.28	
Cd	114	115	He	13.3726	ug/l	1.6	76509.75	106.98	
[Pb]	206	175	He	26.3755	ug/l	1.9	351620.38	105.5	
[Pb]	207	175	He	25.4898	ug/l	1.6	287332.80	101.96	
Pb	208	175	He	25.8808	ug/l	1.7	1359527.59	103.52	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	453067.26	0.7	465634.11	97.3	
Sc	45	No Gas	8861502.15	1.2	9033699.36	98.09	
Ge	72	H2	2013783.32	1.8	2007352.98	100.32	
Sc	45	He	204371.31	0.8	207415.29	98.53	
Ge	72	He	205347.02	0.8	208403.74	98.53	
In	115	He	2270802.35	0.6	2241849.28	101.29	
Lu	175	He	5491731.59	1.4	5577447.69	98.46	
Th	232	He	9149308.62	1.5	9174642.57	99.72	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 006_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:15:51

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	256.3226	ug/l	1.2	5846351.16	102.53	
Se	77	72	H2	24.7988	ug/l	1.0	11094.28	99.2	
Se	78	72	H2	24.5653	ug/l	1.0	29947.92	98.26	
Cr	52	72	He	25.2647	ug/l	0.5	158075.24	101.06	
Cr	53	72	He	24.4608	ug/l	2.5	19363.07	97.84	
Ni	60	72	He	24.9950	ug/l	2.1	84559.15	99.98	
Ni	62	72	He	25.1825	ug/l	3.2	13529.82	100.73	
Cu	63	72	He	24.8895	ug/l	2.2	249372.06	99.56	
Cu	65	72	He	25.1292	ug/l	2.2	125728.15	100.52	
Zn	66	72	He	25.0596	ug/l	0.3	34204.04	100.24	
As	75	72	He	24.5983	ug/l	1.4	21204.79	98.39	
Mo	95	115	He	12.3311	ug/l	0.7	59804.98	98.65	
Mo	98	115	He	12.4995	ug/l	1.0	103456.02	100	
Ag	107	115	He	12.4480	ug/l	0.8	228098.34	99.58	
Ag	109	115	He	12.5071	ug/l	1.0	224451.99	100.06	
Cd	111	115	He	25.0669	ug/l	0.5	55481.22	100.27	
Cd	114	115	He	24.8866	ug/l	0.7	144863.40	99.55	
[Pb]	206	175	He	24.4319	ug/l	1.0	337392.44	97.73	
[Pb]	207	175	He	24.4626	ug/l	0.8	285637.35	97.85	
Pb	208	175	He	24.5006	ug/l	0.4	1333217.21	98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	452435.30	1.7	465634.11	97.17	
Sc	45	No Gas	8931992.70	2.5	9033699.36	98.87	
Ge	72	H2	2070838.88	0.6	2007352.98	103.16	
Sc	45	He	209258.83	0.3	207415.29	100.89	
Ge	72	He	212173.64	1.7	208403.74	101.81	
In	115	He	2310607.84	1.0	2241849.28	103.07	
Lu	175	He	5687996.02	1.0	5577447.69	101.98	
Th	232	He	9186680.90	1.1	9174642.57	100.13	

Initial Calibration Blank (ICB) Report

Sample Name	ICB
File Name	007_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:18:25
Sample Type	ICB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0402	ug/l	12.2	8418.73	
Se	77	72	H2	-0.0080	ug/l	N/A	1556.07	
Se	78	72	H2	0.0141	ug/l	25.5	42.33	
Cr	52	72	He	-0.0092	ug/l	N/A	663.35	
Cr	53	72	He	0.0062	ug/l	1720.1	351.12	
Ni	60	72	He	0.0061	ug/l	67.6	154.45	
Ni	62	72	He	-0.0079	ug/l	N/A	21.11	
Cu	63	72	He	0.0062	ug/l	73.2	318.90	
Cu	65	72	He	-0.0039	ug/l	N/A	121.11	
Zn	66	72	He	-0.0047	ug/l	N/A	107.78	
As	75	72	He	0.0095	ug/l	55.9	25.00	
Mo	95	115	He	-0.0004	ug/l	N/A	25.56	
Mo	98	115	He	0.0023	ug/l	67.0	53.33	
Ag	107	115	He	0.0025	ug/l	42.5	75.56	
Ag	109	115	He	0.0022	ug/l	65.1	61.11	
Cd	111	115	He	0.0042	ug/l	31.6	12.17	
Cd	114	115	He	0.0050	ug/l	13.8	52.17	
[Pb]	206	175	He	0.0007	ug/l	64.5	134.44	
[Pb]	207	175	He	0.0040	ug/l	20.5	134.45	
Pb	208	175	He	0.0031	ug/l	53.4	621.12	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	445785.47	0.5	465634.11	95.74	
Sc	45	No Gas	8781763.82	0.5	9033699.36	97.21	
Ge	72	H2	2004431.24	1.1	2007352.98	99.85	
Sc	45	He	205248.28	2.3	207415.29	98.96	
Ge	72	He	205226.14	0.6	208403.74	98.48	
In	115	He	2210847.60	0.6	2241849.28	98.62	
Lu	175	He	5547486.72	1.4	5577447.69	99.46	
Th	232	He	9103055.28	1.9	9174642.57	99.22	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 008_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:21:01

Sample Type CCB

Comment —

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0210	ug/l	40.7	8068.54	
Se	77	72	H2	0.1480	ug/l	115.0	1172.38	
Se	78	72	H2	0.0085	ug/l	193.2	25.67	
Cr	52	72	He	0.0027	ug/l	384.7	651.13	
Cr	53	72	He	0.0200	ug/l	659.5	324.45	
Ni	60	72	He	0.0006	ug/l	572.7	121.11	
Ni	62	72	He	-0.0172	ug/l	N/A	14.44	
Cu	63	72	He	0.0021	ug/l	217.1	247.78	
Cu	65	72	He	-0.0001	ug/l	N/A	123.33	
Zn	66	72	He	-0.0222	ug/l	N/A	75.56	
As	75	72	He	0.0102	ug/l	142.7	22.33	
Mo	95	115	He	0.0041	ug/l	155.7	40.00	
Mo	98	115	He	0.0036	ug/l	85.8	56.67	
Ag	107	115	He	0.0012	ug/l	35.6	46.67	
Ag	109	115	He	0.0034	ug/l	60.9	72.22	
Cd	111	115	He	0.0026	ug/l	29.7	7.67	
Cd	114	115	He	0.0025	ug/l	33.7	33.50	
[Pb]	206	175	He	0.0008	ug/l	237.6	118.89	
[Pb]	207	175	He	0.0005	ug/l	484.8	83.33	
Pb	208	175	He	0.0009	ug/l	71.1	444.45	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	446390.00	0.8	465634.11	95.87	
Sc	45	No Gas	8867484.65	0.6	9033699.36	98.16	
Ge	72	H2	1456065.92	2.9	2007352.98	72.54	
Sc	45	He	179760.88	3.9	207415.29	86.67	
Ge	72	He	182174.03	5.6	208403.74	87.41	
In	115	He	1947950.98	5.2	2241849.28	86.89	
Lu	175	He	4893983.97	5.7	5577447.69	87.75	
Th	232	He	8114989.67	5.8	9174642.57	88.45	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name	LLICVS
File Name	009LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:23:37
Sample Type	LLICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	4.5748	ug/l	11.2	109366.77	114.37	
Se	77	72	H2	0.9053	ug/l	9.9	1913.78	-90.53	
Se	78	72	H2	0.9883	ug/l	5.0	1203.04	98.83	
Cr	52	72	He	0.4297	ug/l	2.3	3271.44	107.42	
Cr	53	72	He	0.4429	ug/l	25.3	672.24	110.72	
Ni	60	72	He	0.4386	ug/l	9.0	1551.20	109.65	
Ni	62	72	He	0.3694	ug/l	10.2	214.45	92.35	
Cu	63	72	He	0.2082	ug/l	9.5	2251.28	104.1	
Cu	65	72	He	0.2115	ug/l	2.7	1150.05	105.75	
Zn	66	72	He	1.1422	ug/l	7.5	1598.97	114.22	
As	75	72	He	0.4798	ug/l	16.0	412.34	95.96	
Mo	95	115	He	0.1009	ug/l	5.9	504.46	100.9	
Mo	98	115	He	0.1061	ug/l	7.0	892.25	106.1	
Ag	107	115	He	0.0427	ug/l	10.3	794.47	106.75	
Ag	109	115	He	0.0437	ug/l	7.6	787.80	109.25	
Cd	111	115	He	0.0447	ug/l	11.9	99.67	111.75	
Cd	114	115	He	0.0470	ug/l	3.4	291.33	117.5	
[Pb]	206	175	He	0.0994	ug/l	10.8	1435.64	99.4	
[Pb]	207	175	He	0.1078	ug/l	1.8	1291.18	107.8	
Pb	208	175	He	0.1013	ug/l	1.7	5722.69	101.3	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	450034.41	1.3	465634.11	96.65	
Sc	45	No Gas	8734431.60	1.8	9033699.36	96.69	
Ge	72	H2	2024798.39	0.2	2007352.98	100.87	
Sc	45	He	199355.25	0.6	207415.29	96.11	
Ge	72	He	203011.28	0.3	208403.74	97.41	
In	115	He	2252942.70	1.9	2241849.28	100.49	
Lu	175	He	5444965.48	1.1	5577447.69	97.62	
Th	232	He	9074236.74	1.6	9174642.57	98.91	

Sample Report

Sample Name	MoSTD
File Name	010SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:26:12
Sample Type	Sample
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	3.1176	ug/l	2.9	74570.57	
Se	77	72	H2	-0.1258	ug/l	N/A	1500.40	
Se	78	72	H2	-0.0067	ug/l	N/A	17.67	
Cr	52	72	He	0.0811	ug/l	23.3	1220.05	
Cr	53	72	He	-0.1700	ug/l	N/A	221.12	
Ni	60	72	He	0.1700	ug/l	5.0	696.69	
Ni	62	72	He	0.1256	ug/l	27.8	91.11	
Cu	63	72	He	0.0783	ug/l	0.8	1027.82	
Cu	65	72	He	0.0677	ug/l	4.9	472.23	
Zn	66	72	He	1.5622	ug/l	6.5	2190.16	
As	75	72	He	-0.0098	ug/l	N/A	9.00	
Mo	95	115	He	51.4037	ug/l	0.4	249941.47	
Mo	98	115	He	52.0411	ug/l	0.6	431881.94	
Ag	107	115	He	-0.0001	ug/l	N/A	32.22	
Ag	109	115	He	-0.0001	ug/l	N/A	22.22	
Cd	111	115	He	0.0064	ug/l	41.0	17.67	
Cd	114	115	He	0.0042	ug/l	29.8	49.67	
[Pb]	206	175	He	0.0087	ug/l	3.1	250.00	
[Pb]	207	175	He	0.0112	ug/l	31.0	222.22	
Pb	208	175	He	0.0101	ug/l	3.6	1027.80	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	436591.35	1.7	465634.11	93.76	
Sc	45	No Gas	8469428.00	0.5	9033699.36	93.75	
Ge	72	H2	1988314.92	2.1	2007352.98	99.05	
Sc	45	He	207701.72	0.7	207415.29	100.14	
Ge	72	He	207273.01	1.3	208403.74	99.46	
In	115	He	2317327.15	0.8	2241849.28	103.37	
Lu	175	He	5717240.89	1.2	5577447.69	102.51	
Th	232	He	9220568.61	1.9	9174642.57	100.5	

Prep Blank (PB) Report

Sample Name	KQ2412146-03
File Name	011_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:30:33
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.7808	ug/l	7.0	47640.56	
Se	77	72	H2	-0.1854	ug/l	N/A	1486.07	
Se	78	72	H2	-0.0036	ug/l	N/A	21.33	
Cr	52	72	He	0.1126	ug/l	27.8	1388.96	
Cr	53	72	He	0.0079	ug/l	50.2	351.12	
Ni	60	72	He	0.0606	ug/l	18.5	331.11	
Ni	62	72	He	0.0463	ug/l	80.9	48.89	
Cu	63	72	He	0.0384	ug/l	5.4	627.79	
Cu	65	72	He	0.0409	ug/l	26.4	336.67	
Zn	66	72	He	0.1635	ug/l	14.9	327.79	
As	75	72	He	-0.0024	ug/l	N/A	15.00	
Mo	95	115	He	0.0454	ug/l	29.2	244.45	
Mo	98	115	He	0.0443	ug/l	9.4	396.68	
Ag	107	115	He	-0.0002	ug/l	N/A	28.89	
Ag	109	115	He	0.0012	ug/l	77.0	45.56	
Cd	111	115	He	0.0002	ug/l	308.2	3.83	
Cd	114	115	He	0.1106	ug/l	3.7	657.34	Flag
[Pb]	206	175	He	0.0216	ug/l	9.9	421.12	
[Pb]	207	175	He	0.0253	ug/l	2.4	381.12	
Pb	208	175	He	0.0217	ug/l	4.5	1626.71	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	456644.39	0.7	465634.11	98.07	
Sc	45	No Gas	8833281.59	1.7	9033699.36	97.78	
Ge	72	H2	1997854.15	1.0	2007352.98	99.53	
Sc	45	He	206702.65	0.8	207415.29	99.66	
Ge	72	He	204280.48	1.4	208403.74	98.02	
In	115	He	2271812.17	1.2	2241849.28	101.34	
Lu	175	He	5614473.11	1.1	5577447.69	100.66	
Th	232	He	9109467.57	3.2	9174642.57	99.29	

Laboratory Control Sample (LCS) Report

Sample Name KQ2412146-04

File Name 012_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:33:08

Sample Type LCS

Comment 20X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	210.8826	ug/l	4.1	4804330.23	200	105.44	
Se	77	72	H2	51.1679	ug/l	2.2	21085.35	50	102.34	
Se	78	72	H2	51.2738	ug/l	0.6	62206.86	50	102.55	
Cr	52	72	He	21.6095	ug/l	1.3	132770.89	20	108.05	
Cr	53	72	He	21.1305	ug/l	1.2	16462.33	20	105.65	
Ni	60	72	He	53.5940	ug/l	0.6	177785.81	50	107.19	
Ni	62	72	He	53.6800	ug/l	2.2	28273.24	50	107.36	
Cu	63	72	He	26.1350	ug/l	0.1	256980.87	25	104.54	
Cu	65	72	He	26.5215	ug/l	2.0	130213.17	25	106.09	
Zn	66	72	He	51.9210	ug/l	1.5	69408.58	50	103.84	
As	75	72	He	52.7879	ug/l	1.0	44636.03	50	105.58	
Mo	95	115	He	54.5383	ug/l	1.9	253789.62	50	109.08	
Mo	98	115	He	55.3058	ug/l	1.4	439276.13	50	110.61	
Ag	107	115	He	5.4914	ug/l	2.0	96594.20	5	109.83	
Ag	109	115	He	5.4666	ug/l	3.2	94178.69	5	109.33	
Cd	111	115	He	5.6430	ug/l	1.4	11991.15	5	112.86	
Cd	114	115	He	5.4008	ug/l	2.4	30193.70	5	108.02	
[Pb]	206	175	He	51.3111	ug/l	0.4	696846.31	50	102.62	
[Pb]	207	175	He	52.0651	ug/l	0.6	597880.88	50	104.13	
Pb	208	175	He	51.7760	ug/l	0.8	2770705.61	50	103.55	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	453857.05	1.6	465634.11	97.47	
Sc	45	No Gas	8923101.04	0.9	9033699.36	98.78	
Ge	72	H2	2061815.06	0.9	2007352.98	102.71	
Sc	45	He	205330.21	1.3	207415.29	98.99	
Ge	72	He	208184.72	0.3	208403.74	99.89	
In	115	He	2218042.71	1.1	2241849.28	98.94	
Lu	175	He	5594452.14	0.4	5577447.69	100.3	
Th	232	He	9179918.20	1.9	9174642.57	100.06	

Reference Sample Report

Sample Name	K2408064-001
File Name	013_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:35:42
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1441.9486	ug/l	4.9	34473309.74	
Se	77	72	H2	2.7755	ug/l	13.7	2506.19	
Se	78	72	H2	2.8895	ug/l	3.4	3326.66	
Cr	52	72	He	12.8429	ug/l	1.2	74261.31	
Cr	53	72	He	12.3914	ug/l	2.8	9186.94	
Ni	60	72	He	10.6302	ug/l	1.6	33162.99	
Ni	62	72	He	10.4051	ug/l	2.2	5157.48	
Cu	63	72	He	475.3805	ug/l	1.9	4378189.41	
Cu	65	72	He	489.0726	ug/l	1.6	2249040.05	
Zn	66	72	He	443.4032	ug/l	1.2	554923.75	
As	75	72	He	2.9575	ug/l	1.6	2360.17	
Mo	95	115	He	7.0918	ug/l	3.1	32469.21	
Mo	98	115	He	7.2027	ug/l	1.3	56283.15	
Ag	107	115	He	0.8551	ug/l	2.2	14815.58	
Ag	109	115	He	0.8760	ug/l	1.6	14858.96	
Cd	111	115	He	0.7344	ug/l	4.7	1537.07	
Cd	114	115	He	1.1365	ug/l	0.7	6267.02	
[Pb]	206	175	He	9.0262	ug/l	2.0	121540.00	
[Pb]	207	175	He	8.9441	ug/l	1.7	101827.11	
Pb	208	175	He	9.0043	ug/l	1.6	477741.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	471789.62	1.5	465634.11	101.32	
Sc	45	No Gas	9377025.74	1.1	9033699.36	103.8	
Ge	72	H2	1943618.19	2.3	2007352.98	96.82	
Sc	45	He	194107.46	2.0	207415.29	93.58	
Ge	72	He	195190.48	0.8	208403.74	93.66	
In	115	He	2181014.45	1.5	2241849.28	97.29	
Lu	175	He	5543473.25	1.7	5577447.69	99.39	
Th	232	He	9115649.86	2.3	9174642.57	99.36	

Duplicate Sample Report

Sample Name	KQ2412146-01
File Name	014_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:38:14
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	013_
Default Text	ARF ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	29487935.50	1374.9222	ug/l	6.9	4.76	
Se	77	H2	2307.16	2.4507	ug/l	16.2		< 5X MRL
Se	78	H2	2903.25	2.6098	ug/l	3.3		< 5X MRL
Cr	52	He	69308.73	12.3626	ug/l	1.7	3.81	
Cr	53	He	8489.90	11.7931	ug/l	5.0	4.95	
Ni	60	He	31131.40	10.2932	ug/l	0.4	3.22	
Ni	62	He	4637.33	9.6492	ug/l	1.8	7.54	
Cu	63	He	4007504.01	448.9155	ug/l	0.5	5.73	
Cu	65	He	2030683.04	455.5715	ug/l	0.3	7.09	
Zn	66	He	512984.02	422.8542	ug/l	0.3	4.74	
As	75	He	2180.48	2.8180	ug/l	1.4	4.83	
Mo	95	He	30158.21	6.7447	ug/l	2.4	5.02	
Mo	98	He	51566.87	6.7581	ug/l	2.3	6.37	
Ag	107	He	11236.08	0.6636	ug/l	1.1	25.22	Dup Fail
Ag	109	He	11172.72	0.6741	ug/l	1.9	26.06	Dup Fail
Cd	111	He	1420.06	0.6947	ug/l	3.1	5.55	
Cd	114	He	5822.69	1.0812	ug/l	2.2	4.98	
[Pb]	206	He	123307.12	9.3356	ug/l	0.9	3.37	
[Pb]	207	He	103994.05	9.3128	ug/l	1.0	4.04	
Pb	208	He	485260.27	9.3245	ug/l	1.1	3.49	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	418894.95	2.0	465634.11	89.96	59.55	125.44	
Sc	45	No Gas	8420879.94	3.2	9033699.36	93.22	59.55	125.44	
Ge	72	H2	1876346.52	2.0	2007352.98	93.47	59.55	125.44	
Sc	45	He	189308.13	0.4	207415.29	91.27	59.55	125.44	
Ge	72	He	189193.99	0.5	208403.74	90.78	59.55	125.44	
In	115	He	2129854.61	1.6	2241849.28	95	59.55	125.44	
Lu	175	He	5436832.84	0.7	5577447.69	97.48	59.55	125.44	
Th	232	He	9274637.78	1.0	9174642.57	101.09	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name	KQ2412146-02
File Name	015_Spk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:40:46
Sample Type	Spike
Comment	5X
ISTD Ref FileName	003CALB.d
QC Ref File Name	013_ ARF.
Default Text	ÁLKLS NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	2537.3638	ug/l	2.8	52896633.45	800	136.93	Flag
Se	77	H2	218.9950	ug/l	0.4	77309.06	200	108.11	
Se	78	H2	216.8110	ug/l	0.8	239197.01	200	106.96	
Cr	52	He	100.1605	ug/l	1.0	560567.88	80	109.15	
Cr	53	He	98.2701	ug/l	2.0	68868.20	80	107.35	
Ni	60	He	228.3498	ug/l	0.9	692603.90	200	108.86	
Ni	62	He	227.1104	ug/l	0.7	109356.82	200	108.35	
Cu	63	He	591.9140	ug/l	1.5	5319354.79	100	116.53	
Cu	65	He	604.0954	ug/l	0.9	2710720.17	100	115.02	
Zn	66	He	679.1141	ug/l	1.6	829292.15	200	117.86	
As	75	He	213.6792	ug/l	0.3	165254.18	200	105.36	
Mo	95	He	224.0261	ug/l	2.0	970860.38	200	108.47	
Mo	98	He	238.1225	ug/l	4.4	1760837.85	200	115.46	
Ag	107	He	20.9762	ug/l	1.6	343584.25	20	100.61	
Ag	109	He	20.9334	ug/l	2.4	335816.79	20	100.29	
Cd	111	He	22.8665	ug/l	2.2	45243.41	20	110.66	
Cd	114	He	22.2431	ug/l	2.4	115746.08	20	105.53	
[Pb]	206	He	233.9086	ug/l	2.7	2872062.80	200	112.44	
[Pb]	207	He	227.9127	ug/l	0.6	2366261.57	200	109.48	
Pb	208	He	228.1744	ug/l	0.5	11039491.09	200	109.59	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	331656.54	2.1	465634.11	71.23	
Sc	45	No Gas	8175135.79	0.2	9033699.36	90.5	
Ge	72	H2	1875522.56	0.7	2007352.98	93.43	
Sc	45	He	195195.04	0.3	207415.29	94.11	
Ge	72	He	190460.00	0.2	208403.74	91.39	
In	115	He	2066033.30	1.8	2241849.28	92.16	
Lu	175	He	5058809.11	0.6	5577447.69	90.7	
Th	232	He	8315063.83	0.9	9174642.57	90.63	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 016_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:44:12

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	257.7492	ug/l	2.7	5374471.17	103.1	
Se	77	72	H2	25.2351	ug/l	0.8	10845.12	100.94	
Se	78	72	H2	24.6009	ug/l	1.2	28883.08	98.4	
Cr	52	72	He	25.2711	ug/l	2.2	151863.95	101.08	
Cr	53	72	He	25.3953	ug/l	2.0	19300.83	101.58	
Ni	60	72	He	24.9606	ug/l	0.5	81141.95	99.84	
Ni	62	72	He	25.1105	ug/l	2.6	12958.29	100.44	
Cu	63	72	He	24.6397	ug/l	2.0	237168.83	98.56	
Cu	65	72	He	24.8530	ug/l	1.2	119466.22	99.41	
Zn	66	72	He	25.0991	ug/l	0.6	32909.29	100.4	
As	75	72	He	24.6456	ug/l	1.4	20409.82	98.58	
Mo	95	115	He	12.5004	ug/l	2.2	56941.86	100	
Mo	98	115	He	12.5664	ug/l	1.8	97697.65	100.53	
Ag	107	115	He	12.4862	ug/l	1.8	214908.51	99.89	
Ag	109	115	He	12.4595	ug/l	1.5	210039.42	99.68	
Cd	111	115	He	25.0334	ug/l	1.7	52042.82	100.13	
Cd	114	115	He	24.6859	ug/l	1.5	134974.27	98.74	
[Pb]	206	175	He	24.1188	ug/l	0.4	306626.93	96.48	
[Pb]	207	175	He	23.9340	ug/l	0.7	257276.61	95.74	
Pb	208	175	He	24.0818	ug/l	0.5	1206343.11	96.33	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	342013.70	1.0	465634.11	73.45	
Sc	45	No Gas	8168397.73	0.8	9033699.36	90.42	
Ge	72	H2	1994249.09	0.6	2007352.98	99.35	
Sc	45	He	204148.21	2.0	207415.29	98.42	
Ge	72	He	203826.14	1.6	208403.74	97.8	
In	115	He	2170597.11	1.5	2241849.28	96.82	
Lu	175	He	5236038.54	0.1	5577447.69	93.88	
Th	232	He	8453979.67	1.2	9174642.57	92.15	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 017_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:52:02

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0356	ug/l	21.7	8165.27	
Se	77	72	H2	0.7543	ug/l	22.9	1823.77	
Se	78	72	H2	0.0010	ug/l	325.6	26.67	
Cr	52	72	He	-0.0003	ug/l	N/A	710.02	
Cr	53	72	He	0.1843	ug/l	49.5	480.01	
Ni	60	72	He	-0.0031	ug/l	N/A	123.34	
Ni	62	72	He	-0.0054	ug/l	N/A	22.22	
Cu	63	72	He	0.0094	ug/l	7.5	346.68	
Cu	65	72	He	0.0110	ug/l	34.2	191.12	
Zn	66	72	He	0.0074	ug/l	204.9	122.22	
As	75	72	He	0.0171	ug/l	32.9	31.00	
Mo	95	115	He	0.0048	ug/l	30.9	48.89	
Mo	98	115	He	0.0054	ug/l	42.2	76.67	
Ag	107	115	He	0.0009	ug/l	93.6	46.67	
Ag	109	115	He	0.0001	ug/l	625.3	24.45	
Cd	111	115	He	0.0018	ug/l	57.7	7.00	
Cd	114	115	He	0.0016	ug/l	121.2	32.67	
[Pb]	206	175	He	0.0012	ug/l	78.3	132.22	
[Pb]	207	175	He	-0.0008	ug/l	N/A	74.44	
Pb	208	175	He	0.0006	ug/l	100.2	462.23	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	368429.02	1.1	465634.11	79.12	
Sc	45	No Gas	8620881.05	1.6	9033699.36	95.43	
Ge	72	H2	1987748.32	1.0	2007352.98	99.02	
Sc	45	He	209061.55	0.2	207415.29	100.79	
Ge	72	He	203208.24	1.2	208403.74	97.51	
In	115	He	2171616.52	0.3	2241849.28	96.87	
Lu	175	He	5218106.60	2.9	5577447.69	93.56	
Th	232	He	8471836.96	1.0	9174642.57	92.34	

Prep Blank (PB) Report

Sample Name	KQ2412305-03
File Name	018_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:54:37
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.5148	ug/l	2.9	37593.30	
Se	77	72	H2	0.5405	ug/l	70.8	1314.06	
Se	78	72	H2	-0.0019	ug/l	N/A	17.67	
Cr	52	72	He	0.1622	ug/l	10.3	1495.63	
Cr	53	72	He	0.2873	ug/l	11.1	495.57	
Ni	60	72	He	0.0653	ug/l	2.9	306.67	
Ni	62	72	He	0.0545	ug/l	62.5	46.67	
Cu	63	72	He	0.0455	ug/l	29.1	617.79	
Cu	65	72	He	0.0337	ug/l	15.6	267.78	
Zn	66	72	He	0.8586	ug/l	6.3	1096.71	
As	75	72	He	0.0102	ug/l	82.7	22.33	
Mo	95	115	He	0.0209	ug/l	20.2	111.11	
Mo	98	115	He	0.0222	ug/l	5.4	187.78	
Ag	107	115	He	0.0004	ug/l	79.3	34.45	
Ag	109	115	He	0.0007	ug/l	45.8	31.11	
Cd	111	115	He	0.0016	ug/l	123.7	6.00	
Cd	114	115	He	0.1116	ug/l	3.4	575.34	Flag
[Pb]	206	175	He	0.0220	ug/l	12.3	358.90	
[Pb]	207	175	He	0.0280	ug/l	10.3	345.56	
Pb	208	175	He	0.0244	ug/l	2.6	1488.93	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	342779.94	10.0	465634.11	73.62	
Sc	45	No Gas	7979988.57	10.0	9033699.36	88.34	
Ge	72	H2	1500467.92	4.7	2007352.98	74.75	
Sc	45	He	183461.54	4.2	207415.29	88.45	
Ge	72	He	180934.06	4.5	208403.74	86.82	
In	115	He	1969862.26	4.6	2241849.28	87.87	
Lu	175	He	4714571.76	3.3	5577447.69	84.53	
Th	232	He	7516074.89	4.6	9174642.57	81.92	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2412305-04
File Name	019_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:57:13
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	220.9047	ug/l	4.7	4931143.00	200	110.45	
Se	77	72	H2	53.9771	ug/l	1.5	22205.09	50	107.95	
Se	78	72	H2	52.3459	ug/l	2.5	63645.11	50	104.69	
Cr	52	72	He	22.2322	ug/l	0.4	136609.91	20	111.16	
Cr	53	72	He	21.8843	ug/l	2.7	17042.89	20	109.42	
Ni	60	72	He	55.1473	ug/l	0.5	182980.20	50	110.29	
Ni	62	72	He	54.3338	ug/l	0.4	28623.79	50	108.67	
Cu	63	72	He	26.8594	ug/l	1.0	264164.80	25	107.44	
Cu	65	72	He	26.9191	ug/l	1.6	132202.04	25	107.68	
Zn	66	72	He	52.8402	ug/l	2.2	70653.54	50	105.68	
As	75	72	He	54.0747	ug/l	0.3	45735.55	50	108.15	
Mo	95	115	He	0.0087	ug/l	23.6	67.78	50	0.02	LCS Main CR1 Failed
Mo	98	115	He	0.0105	ug/l	26.8	118.89	50	0.02	LCS Main CR1 Failed
Ag	107	115	He	5.4517	ug/l	0.9	95866.87	5	109.03	
Ag	109	115	He	5.4961	ug/l	1.3	94653.59	5	109.92	
Cd	111	115	He	5.6571	ug/l	1.2	12014.34	5	113.14	
Cd	114	115	He	5.3928	ug/l	1.8	30133.59	5	107.86	
[Pb]	206	175	He	52.1719	ug/l	1.9	668252.30	50	104.34	
[Pb]	207	175	He	52.4263	ug/l	2.0	567800.55	50	104.85	
Pb	208	175	He	52.5097	ug/l	1.6	2650229.77	50	105.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	372323.98	1.8	465634.11	79.96	
Sc	45	No Gas	8747378.26	2.9	9033699.36	96.83	
Ge	72	H2	2066579.57	1.0	2007352.98	102.95	
Sc	45	He	209614.02	0.8	207415.29	101.06	
Ge	72	He	208236.59	0.7	208403.74	99.92	
In	115	He	2216900.58	1.7	2241849.28	98.89	
Lu	175	He	5276831.04	0.6	5577447.69	94.61	
Th	232	He	8621230.29	2.6	9174642.57	93.97	

Reference Sample Report

Sample Name	K2408179-001
File Name	020_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:59:47
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	182.8260	ug/l	1.6	4191940.11	
Se	77	72	H2	0.8008	ug/l	25.5	1868.44	
Se	78	72	H2	0.3283	ug/l	2.9	415.68	
Cr	52	72	He	3.1525	ug/l	1.5	19138.39	
Cr	53	72	He	3.1123	ug/l	5.6	2607.99	
Ni	60	72	He	1.4596	ug/l	3.1	4761.81	
Ni	62	72	He	1.6751	ug/l	14.4	867.80	
Cu	63	72	He	32.1045	ug/l	0.5	302151.07	
Cu	65	72	He	32.1022	ug/l	0.5	150868.06	
Zn	66	72	He	86.1235	ug/l	0.2	110152.53	
As	75	72	He	0.2455	ug/l	14.9	215.33	
Mo	95	115	He	0.8696	ug/l	1.4	3980.50	
Mo	98	115	He	0.9006	ug/l	4.9	7020.40	
Ag	107	115	He	0.2134	ug/l	1.3	3698.22	
Ag	109	115	He	0.2184	ug/l	6.7	3696.00	
Cd	111	115	He	0.0779	ug/l	9.3	165.00	
Cd	114	115	He	0.2728	ug/l	7.4	1513.26	
[Pb]	206	175	He	1.2260	ug/l	2.6	16292.01	
[Pb]	207	175	He	1.2080	ug/l	2.9	13559.36	
Pb	208	175	He	1.2092	ug/l	1.3	63304.29	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	382170.53	1.5	465634.11	82.08	
Sc	45	No Gas	8975296.03	0.8	9033699.36	99.35	
Ge	72	H2	2018838.18	1.7	2007352.98	100.57	
Sc	45	He	205427.84	0.4	207415.29	99.04	
Ge	72	He	199307.58	0.7	208403.74	95.64	
In	115	He	2167411.75	1.9	2241849.28	96.68	
Lu	175	He	5435753.26	1.7	5577447.69	97.46	
Th	232	He	8659558.20	1.8	9174642.57	94.39	

Duplicate Sample Report

Sample Name	KQ2412305-01
File Name	021_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:02:21
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	020_
Default Text	ARF ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	4100341.78	182.3643	ug/l	12.1	0.25	
Se	77	H2	1801.44	0.7062	ug/l	23.3		< 5X MRL
Se	78	H2	373.00	0.2979	ug/l	11.1		< 5X MRL
Cr	52	He	19037.18	3.1471	ug/l	2.6	0.17	
Cr	53	He	2404.63	2.8453	ug/l	4.4	8.96	
Ni	60	He	4821.81	1.4839	ug/l	1.0		< 5X MRL
Ni	62	He	796.69	1.5383	ug/l	2.6		< 5X MRL
Cu	63	He	192815.85	20.5535	ug/l	1.6	43.87	Dup Fail
Cu	65	He	96574.93	20.6162	ug/l	1.6	43.57	Dup Fail
Zn	66	He	100070.78	78.5205	ug/l	1.0	9.24	
As	75	He	184.33	0.2081	ug/l	6.6		< 5X MRL
Mo	95	He	3763.78	0.8269	ug/l	3.3	5.03	
Mo	98	He	6433.51	0.8294	ug/l	2.4	8.23	
Ag	107	He	3410.38	0.1981	ug/l	10.5	7.43	
Ag	109	He	3428.16	0.2036	ug/l	3.9	7.01	
Cd	111	He	124.50	0.0588	ug/l	6.3		< 5X MRL
Cd	114	He	1147.04	0.2070	ug/l	2.8	27.39	Dup Fail
[Pb]	206	He	13533.81	1.0445	ug/l	0.1	15.98	
[Pb]	207	He	11370.91	1.0395	ug/l	1.4	15	
Pb	208	He	53129.48	1.0413	ug/l	1.1	14.92	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	379931.51	1.9	465634.11	81.59	59.55	125.44	
Sc	45	No Gas	8798184.09	0.6	9033699.36	97.39	59.55	125.44	
Ge	72	H2	1983212.07	0.5	2007352.98	98.8	59.55	125.44	
Sc	45	He	200633.68	0.6	207415.29	96.73	59.55	125.44	
Ge	72	He	198583.22	1.1	208403.74	95.29	59.55	125.44	
In	115	He	2155190.53	2.7	2241849.28	96.13	59.55	125.44	
Lu	175	He	5291453.40	1.7	5577447.69	94.87	59.55	125.44	
Th	232	He	8742469.87	1.8	9174642.57	95.29	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name	KQ2412305-02
File Name	022_Spk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:04:55
Sample Type	Spike
Comment	5X
ISTD Ref FileName	003CALB.d
QC Ref File Name	020_ ARF.
Default Text	**ÁLKLS** **NoUser**

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	989.4168	ug/l	4.6	21861881.91	800	100.82	
Se	77	H2	210.2281	ug/l	1.4	76780.67	200	104.71	
Se	78	H2	207.4951	ug/l	1.9	236643.28	200	103.58	
Cr	52	He	88.8083	ug/l	0.9	514975.35	80	107.07	
Cr	53	He	86.5131	ug/l	0.2	62846.63	80	104.25	
Ni	60	He	212.0445	ug/l	1.0	666259.30	200	105.29	
Ni	62	He	211.3294	ug/l	0.7	105412.29	200	104.83	
Cu	63	He	122.6132	ug/l	0.7	1141658.29	100	90.51	
Cu	65	He	124.0608	ug/l	1.6	576766.35	100	91.96	
Zn	66	He	277.5806	ug/l	0.9	351207.22	200	95.73	
As	75	He	209.8202	ug/l	0.5	168097.29	200	104.79	
Mo	95	He	0.7736	ug/l	1.7	3533.73	200	-0.05	Flag
Mo	98	He	0.7307	ug/l	2.7	5689.90	200	-0.08	Flag
Ag	107	He	18.9567	ug/l	0.6	324843.05	20	93.72	
Ag	109	He	19.0525	ug/l	2.1	319760.40	20	94.17	
Cd	111	He	21.3917	ug/l	0.9	44282.31	20	106.57	
Cd	114	He	20.7391	ug/l	0.9	112909.98	20	102.33	
[Pb]	206	He	211.4782	ug/l	2.4	2719735.72	200	105.13	
[Pb]	207	He	214.7299	ug/l	1.9	2335235.67	200	106.76	
Pb	208	He	214.0774	ug/l	1.5	10849375.75	200	106.43	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	373415.65	0.4	465634.11	80.2	
Sc	45	No Gas	8666719.65	1.5	9033699.36	95.94	
Ge	72	H2	1939235.89	2.0	2007352.98	96.61	
Sc	45	He	203051.03	1.8	207415.29	97.9	
Ge	72	He	197299.38	0.4	208403.74	94.67	
In	115	He	2161020.66	0.7	2241849.28	96.39	
Lu	175	He	5299832.71	1.6	5577447.69	95.02	
Th	232	He	8646359.04	1.4	9174642.57	94.24	

Sample Report

Sample Name	K2408179-002
File Name	023SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:07:27
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	257.3358	ug/l	55.5	5647431.58	
Se	77	72	H2	0.6078	ug/l	22.6	1724.09	
Se	78	72	H2	0.3381	ug/l	4.9	410.01	
Cr	52	72	He	2.5683	ug/l	1.7	15341.30	
Cr	53	72	He	2.2674	ug/l	2.6	1943.45	
Ni	60	72	He	1.2837	ug/l	3.0	4101.63	
Ni	62	72	He	1.3726	ug/l	12.8	698.91	
Cu	63	72	He	16.6816	ug/l	1.2	153303.92	
Cu	65	72	He	16.7529	ug/l	1.3	76890.93	
Zn	66	72	He	66.8018	ug/l	0.8	83390.07	
As	75	72	He	0.1865	ug/l	7.7	163.33	
Mo	95	115	He	0.6653	ug/l	5.1	3059.19	
Mo	98	115	He	0.6960	ug/l	1.9	5454.27	
Ag	107	115	He	0.8564	ug/l	2.7	14791.06	
Ag	109	115	He	0.8362	ug/l	2.4	14138.34	
Cd	111	115	He	0.0537	ug/l	12.6	114.83	
Cd	114	115	He	0.1922	ug/l	4.8	1075.54	
[Pb]	206	175	He	0.9718	ug/l	1.4	12611.88	
[Pb]	207	175	He	0.9975	ug/l	2.6	10928.37	
Pb	208	175	He	0.9740	ug/l	0.6	49775.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	377086.59	0.9	465634.11	80.98	
Sc	45	No Gas	8610226.60	0.6	9033699.36	95.31	
Ge	72	H2	1937094.99	1.6	2007352.98	96.5	
Sc	45	He	200091.90	1.9	207415.29	96.47	
Ge	72	He	194479.58	1.1	208403.74	93.32	
In	115	He	2174497.70	2.9	2241849.28	97	
Lu	175	He	5296757.99	0.9	5577447.69	94.97	
Th	232	He	8666285.08	1.2	9174642.57	94.46	

Sample Report

Sample Name K2408179-003

File Name 024SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:10:00

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	132.2700	ug/l	6.7	2902881.83	
Se	77	72	H2	0.7542	ug/l	10.9	1776.76	
Se	78	72	H2	0.2744	ug/l	10.9	337.34	
Cr	52	72	He	2.6782	ug/l	1.6	16043.04	
Cr	53	72	He	2.5140	ug/l	4.9	2129.03	
Ni	60	72	He	1.0596	ug/l	2.7	3424.81	
Ni	62	72	He	1.1455	ug/l	15.1	590.01	
Cu	63	72	He	16.5860	ug/l	1.4	153148.29	
Cu	65	72	He	16.6485	ug/l	0.4	76768.43	
Zn	66	72	He	66.6288	ug/l	1.1	83565.62	
As	75	72	He	0.1770	ug/l	7.5	156.67	
Mo	95	115	He	0.6961	ug/l	2.1	3138.10	
Mo	98	115	He	0.7141	ug/l	3.8	5478.72	
Ag	107	115	He	0.1567	ug/l	5.1	2679.12	
Ag	109	115	He	0.1517	ug/l	5.6	2531.33	
Cd	111	115	He	0.0583	ug/l	9.9	122.00	
Cd	114	115	He	0.2032	ug/l	4.5	1113.54	
[Pb]	206	175	He	3.7075	ug/l	1.2	47830.42	
[Pb]	207	175	He	4.0208	ug/l	0.5	43839.86	
Pb	208	175	He	3.8594	ug/l	1.0	196133.59	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	375250.98	1.0	465634.11	80.59	
Sc	45	No Gas	8589933.83	1.4	9033699.36	95.09	
Ge	72	H2	1937210.41	1.0	2007352.98	96.51	
Sc	45	He	200794.31	0.5	207415.29	96.81	
Ge	72	He	195392.04	0.6	208403.74	93.76	
In	115	He	2130167.99	1.6	2241849.28	95.02	
Lu	175	He	5302437.84	1.6	5577447.69	95.07	
Th	232	He	8680319.45	2.5	9174642.57	94.61	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	025_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:15:37
Sample Type	CCV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	258.4631	ug/l	3.1	5642645.47	103.39	
Se	77	72	H2	25.4354	ug/l	1.2	10948.52	101.74	
Se	78	72	H2	24.6556	ug/l	2.3	29019.28	98.62	
Cr	52	72	He	25.7406	ug/l	1.9	154931.80	102.96	
Cr	53	72	He	25.1104	ug/l	1.7	19118.40	100.44	
Ni	60	72	He	24.8324	ug/l	1.7	80845.97	99.33	
Ni	62	72	He	25.0929	ug/l	2.1	12971.61	100.37	
Cu	63	72	He	24.8957	ug/l	1.6	240040.77	99.58	
Cu	65	72	He	25.0070	ug/l	1.8	120398.20	100.03	
Zn	66	72	He	24.7903	ug/l	2.9	32549.75	99.16	
As	75	72	He	24.8002	ug/l	0.2	20576.36	99.2	
Mo	95	115	He	12.3441	ug/l	3.5	56752.24	98.75	
Mo	98	115	He	12.3444	ug/l	2.9	96868.02	98.76	
Ag	107	115	He	12.4021	ug/l	1.6	215494.60	99.22	
Ag	109	115	He	12.3928	ug/l	1.3	210916.51	99.14	
Cd	111	115	He	24.9222	ug/l	2.1	52301.79	99.69	
Cd	114	115	He	24.6143	ug/l	2.4	135848.62	98.46	
[Pb]	206	175	He	24.1248	ug/l	1.0	310092.65	96.5	
[Pb]	207	175	He	23.9766	ug/l	0.9	260570.76	95.91	
Pb	208	175	He	23.9758	ug/l	0.2	1214319.01	95.9	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	373133.60	0.6	465634.11	80.13	
Sc	45	No Gas	8552265.77	0.7	9033699.36	94.67	
Ge	72	H2	1999854.43	2.0	2007352.98	99.63	
Sc	45	He	204611.12	0.8	207415.29	98.65	
Ge	72	He	204177.45	2.1	208403.74	97.97	
In	115	He	2191614.55	2.7	2241849.28	97.76	
Lu	175	He	5294035.21	1.3	5577447.69	94.92	
Th	232	He	8612978.83	2.2	9174642.57	93.88	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 026_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:18:12

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0743	ug/l	18.5	9074.59	
Se	77	72	H2	0.5652	ug/l	32.2	1778.43	
Se	78	72	H2	0.0049	ug/l	85.0	31.67	
Cr	52	72	He	-0.0155	ug/l	N/A	612.24	
Cr	53	72	He	0.0050	ug/l	1080.7	343.34	
Ni	60	72	He	-0.0004	ug/l	N/A	131.11	
Ni	62	72	He	-0.0092	ug/l	N/A	20.00	
Cu	63	72	He	0.0012	ug/l	138.0	265.56	
Cu	65	72	He	0.0033	ug/l	236.6	153.33	
Zn	66	72	He	0.0006	ug/l	3524.6	112.22	
As	75	72	He	0.0086	ug/l	61.2	23.67	
Mo	95	115	He	0.0041	ug/l	111.9	45.56	
Mo	98	115	He	0.0023	ug/l	32.1	52.22	
Ag	107	115	He	0.0016	ug/l	94.4	58.89	
Ag	109	115	He	0.0021	ug/l	51.4	58.89	
Cd	111	115	He	0.0046	ug/l	9.3	12.83	
Cd	114	115	He	0.0042	ug/l	50.3	46.83	
[Pb]	206	175	He	0.0025	ug/l	128.2	150.00	
[Pb]	207	175	He	0.0011	ug/l	221.7	95.56	
Pb	208	175	He	0.0016	ug/l	78.4	516.68	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	381741.86	0.8	465634.11	81.98	
Sc	45	No Gas	8676201.88	1.0	9033699.36	96.04	
Ge	72	H2	2014744.99	1.7	2007352.98	100.37	
Sc	45	He	203054.51	2.6	207415.29	97.9	
Ge	72	He	201255.90	2.0	208403.74	96.57	
In	115	He	2171462.11	1.2	2241849.28	96.86	
Lu	175	He	5253254.38	1.3	5577447.69	94.19	
Th	232	He	8406662.16	1.8	9174642.57	91.63	

Prep Blank (PB) Report

Sample Name	KQ2411923-05
File Name	027_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:20:47
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.6039	ug/l	5.0	35806.74	
Se	77	72	H2	0.7883	ug/l	54.0	1405.06	
Se	78	72	H2	0.0085	ug/l	158.7	26.33	
Cr	52	72	He	0.0868	ug/l	5.5	1233.39	
Cr	53	72	He	0.0683	ug/l	86.5	395.56	
Ni	60	72	He	0.0564	ug/l	13.9	316.67	
Ni	62	72	He	0.0421	ug/l	120.6	46.67	
Cu	63	72	He	0.0342	ug/l	11.3	586.68	
Cu	65	72	He	0.0261	ug/l	13.6	264.45	
Zn	66	72	He	0.1389	ug/l	18.8	294.45	
As	75	72	He	0.0065	ug/l	22.9	22.33	
Mo	95	115	He	0.0229	ug/l	12.7	133.33	
Mo	98	115	He	0.0238	ug/l	27.4	223.33	
Ag	107	115	He	0.0004	ug/l	367.6	37.78	
Ag	109	115	He	0.0006	ug/l	27.5	33.33	
Cd	111	115	He	0.0016	ug/l	44.1	6.67	
Cd	114	115	He	0.1137	ug/l	3.5	658.01	Flag
[Pb]	206	175	He	0.1644	ug/l	7.6	2251.29	Flag
[Pb]	207	175	He	0.1553	ug/l	9.7	1785.67	Flag
Pb	208	175	He	0.1583	ug/l	3.2	8523.21	Flag

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	314746.81	12.1	465634.11	67.6	
Sc	45	No Gas	7225476.38	12.0	9033699.36	79.98	
Ge	72	H2	1536375.53	17.6	2007352.98	76.54	
Sc	45	He	206005.78	0.5	207415.29	99.32	
Ge	72	He	203824.96	0.5	208403.74	97.8	
In	115	He	2211613.21	1.6	2241849.28	98.65	
Lu	175	He	5340308.40	1.1	5577447.69	95.75	
Th	232	He	8560725.08	1.1	9174642.57	93.31	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411923-06
File Name	028_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:23:23
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	213.4223	ug/l	3.0	4848620.92	200	106.71	
Se	77	72	H2	52.6969	ug/l	1.0	21407.07	50	105.39	
Se	78	72	H2	51.8563	ug/l	1.0	62151.66	50	103.71	
Cr	52	72	He	21.6253	ug/l	2.1	132459.44	20	108.13	
Cr	53	72	He	21.0520	ug/l	1.6	16355.52	20	105.26	
Ni	60	72	He	53.0233	ug/l	0.9	175370.76	50	106.05	
Ni	62	72	He	52.2433	ug/l	1.7	27432.99	50	104.49	
Cu	63	72	He	25.8135	ug/l	1.2	253058.51	25	103.25	
Cu	65	72	He	25.8597	ug/l	0.9	126594.65	25	103.44	
Zn	66	72	He	50.8473	ug/l	1.3	67774.12	50	101.69	
As	75	72	He	51.7720	ug/l	1.6	43645.49	50	103.54	
Mo	95	115	He	53.1496	ug/l	0.4	246620.94	50	106.3	
Mo	98	115	He	53.5364	ug/l	0.3	423984.99	50	107.07	
Ag	107	115	He	5.2337	ug/l	0.8	91799.67	5	104.67	
Ag	109	115	He	5.2990	ug/l	0.6	91031.53	5	105.98	
Cd	111	115	He	5.3549	ug/l	0.9	11345.53	5	107.1	
Cd	114	115	He	5.1509	ug/l	0.3	28715.57	5	103.02	
[Pb]	206	175	He	49.6918	ug/l	1.1	638497.23	50	99.38	
[Pb]	207	175	He	50.3355	ug/l	0.7	546881.32	50	100.67	
Pb	208	175	He	50.1207	ug/l	1.3	2537502.07	50	100.24	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	391229.07	1.2	465634.11	84.02	
Sc	45	No Gas	8894220.20	1.8	9033699.36	98.46	
Ge	72	H2	2036989.64	1.5	2007352.98	101.48	
Sc	45	He	206884.52	0.9	207415.29	99.74	
Ge	72	He	207577.67	1.2	208403.74	99.6	
In	115	He	2211358.90	0.6	2241849.28	98.64	
Lu	175	He	5293378.12	1.2	5577447.69	94.91	
Th	232	He	8497365.08	1.9	9174642.57	92.62	

Reference Sample Report

Sample Name	K2407895-001
File Name	029_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:25:57
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	10781.0022	ug/l	4.6	248065030.14	
Se	77	72	H2	0.6804	ug/l	4.7	1844.77	
Se	78	72	H2	0.1319	ug/l	11.7	184.33	
Cr	52	72	He	18.6216	ug/l	1.9	112345.18	
Cr	53	72	He	18.1800	ug/l	2.7	13944.58	
Ni	60	72	He	13.8021	ug/l	1.2	45019.79	
Ni	62	72	He	13.5791	ug/l	1.9	7035.93	
Cu	63	72	He	57.5989	ug/l	1.4	555335.69	
Cu	65	72	He	57.5295	ug/l	1.4	276967.17	
Zn	66	72	He	43.8076	ug/l	2.2	57471.37	
As	75	72	He	1.8073	ug/l	4.6	1515.40	
Mo	95	115	He	1.2480	ug/l	3.4	5753.25	
Mo	98	115	He	1.2419	ug/l	3.1	9760.69	
Ag	107	115	He	0.0351	ug/l	8.4	640.02	
Ag	109	115	He	0.0338	ug/l	9.7	597.79	
Cd	111	115	He	0.1093	ug/l	4.6	232.33	
Cd	114	115	He	0.2069	ug/l	2.8	1163.71	
[Pb]	206	175	He	2.2632	ug/l	5.1	30139.45	
[Pb]	207	175	He	2.2491	ug/l	2.3	25321.97	
Pb	208	175	He	2.2463	ug/l	3.1	117885.98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	376335.91	0.8	465634.11	80.82	
Sc	45	No Gas	9024573.25	1.5	9033699.36	99.9	
Ge	72	H2	2041621.17	1.5	2007352.98	101.71	
Sc	45	He	212716.19	0.9	207415.29	102.56	
Ge	72	He	204264.76	1.0	208403.74	98.01	
In	115	He	2187222.68	1.1	2241849.28	97.56	
Lu	175	He	5469058.40	2.5	5577447.69	98.06	
Th	232	He	8754024.24	0.5	9174642.57	95.42	

Duplicate Sample Report

Sample Name	KQ2411923-01
File Name	030_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:28:31
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	029_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	283551686.51	11994.4474	ug/l	6.8	10.66	
Se	77	H2	1854.77	0.7886	ug/l	29.5		< 5X MRL
Se	78	H2	375.67	0.2962	ug/l	4.6		< 5X MRL
Cr	52	He	187535.87	31.4299	ug/l	1.7	51.18	Dup Fail
Cr	53	He	23162.17	30.7672	ug/l	3.7	51.43	Dup Fail
Ni	60	He	62002.01	19.1866	ug/l	0.8	32.64	Dup Fail
Ni	62	He	9917.36	19.3251	ug/l	3.9	34.93	Dup Fail
Cu	63	He	687498.37	71.9203	ug/l	0.8	22.11	Dup Fail
Cu	65	He	343492.91	71.9641	ug/l	0.1	22.29	Dup Fail
Zn	66	He	66726.69	51.3070	ug/l	1.0	15.77	
As	75	He	2534.53	3.0618	ug/l	1.8		< 5X MRL
Mo	95	He	7216.05	1.5646	ug/l	1.8	22.52	Dup Fail
Mo	98	He	12443.58	1.5826	ug/l	4.6	24.13	Dup Fail
Ag	107	He	706.69	0.0389	ug/l	3.8		< 5X MRL
Ag	109	He	781.13	0.0446	ug/l	3.9		< 5X MRL
Cd	111	He	249.17	0.1173	ug/l	7.8		< 5X MRL
Cd	114	He	1234.55	0.2195	ug/l	1.5	5.92	
[Pb]	206	He	27526.77	2.0949	ug/l	1.3	7.72	
[Pb]	207	He	22346.22	2.0123	ug/l	1.2	11.11	
Pb	208	He	106104.08	2.0496	ug/l	0.6	9.16	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	382981.09	1.3	465634.11	82.25	59.55	125.44	
Sc	45	No Gas	9282890.74	3.0	9033699.36	102.76	59.55	125.44	
Ge	72	H2	2008948.18	1.7	2007352.98	100.08	59.55	125.44	
Sc	45	He	210517.15	1.6	207415.29	101.5	59.55	125.44	
Ge	72	He	202523.62	0.2	208403.74	97.18	59.55	125.44	
In	115	He	2189678.34	1.3	2241849.28	97.67	59.55	125.44	
Lu	175	He	5390618.40	1.4	5577447.69	96.65	59.55	125.44	
Th	232	He	8701334.87	1.8	9174642.57	94.84	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name	KQ2411923-02
File Name	031_Spk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:31:06
Sample Type	Spike
Comment	5X
ISTD Ref FileName	003CALB.d
QC Ref File Name	029_ ARF.
Default Text	ÁLKLS NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	13476.8285	ug/l	4.7	309507792.14	800	336.98	Flag
Se	77	H2	205.7878	ug/l	1.7	76247.65	200	102.55	
Se	78	H2	204.4235	ug/l	0.5	236450.86	200	102.15	
Cr	52	He	126.0627	ug/l	0.7	725816.32	80	134.3	Flag
Cr	53	He	124.5552	ug/l	1.3	89724.79	80	132.97	Flag
Ni	60	He	235.7635	ug/l	0.7	735813.39	200	110.98	
Ni	62	He	236.4153	ug/l	2.2	117148.74	200	111.42	
Cu	63	He	189.3196	ug/l	1.7	1751007.12	100	131.72	Flag
Cu	65	He	177.2240	ug/l	0.8	818407.60	100	119.69	
Zn	66	He	266.1841	ug/l	0.8	334524.52	200	111.19	
As	75	He	212.5268	ug/l	0.9	169117.70	200	105.36	
Mo	95	He	216.4464	ug/l	1.3	950925.86	200	107.6	
Mo	98	He	229.1050	ug/l	1.4	1717977.95	200	113.93	
Ag	107	He	20.4324	ug/l	1.1	339273.03	20	101.99	
Ag	109	He	20.5099	ug/l	1.7	333560.42	20	102.38	
Cd	111	He	21.8187	ug/l	1.0	43765.78	20	108.55	
Cd	114	He	22.0638	ug/l	1.5	116396.44	20	109.28	
[Pb]	206	He	221.8213	ug/l	2.0	2819901.70	200	109.78	
[Pb]	207	He	219.4726	ug/l	1.3	2359262.61	200	108.61	
Pb	208	He	220.0706	ug/l	0.8	11024329.77	200	108.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	382144.62	0.3	465634.11	82.07	
Sc	45	No Gas	9008682.97	1.1	9033699.36	99.72	
Ge	72	H2	1966307.22	0.8	2007352.98	97.96	
Sc	45	He	202666.36	1.2	207415.29	97.71	
Ge	72	He	195979.96	0.9	208403.74	94.04	
In	115	He	2094078.06	0.8	2241849.28	93.41	
Lu	175	He	5237998.26	0.7	5577447.69	93.91	
Th	232	He	8608079.04	1.2	9174642.57	93.82	

Reference Sample Report

Sample Name	K2407895-013
File Name	032_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:33:36
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	25850.7798	ug/l	3.5	586798358.90	
Se	77	72	H2	2.9143	ug/l	2.7	2498.52	
Se	78	72	H2	2.0649	ug/l	3.5	2329.17	
Cr	52	72	He	66.3224	ug/l	1.8	380073.40	
Cr	53	72	He	65.7479	ug/l	0.6	47266.50	
Ni	60	72	He	64.8387	ug/l	1.0	201351.79	
Ni	62	72	He	63.7626	ug/l	2.6	31442.09	
Cu	63	72	He	131.0776	ug/l	0.7	1205712.66	
Cu	65	72	He	132.0177	ug/l	0.5	606373.93	
Zn	66	72	He	197.4889	ug/l	0.4	246887.06	
As	75	72	He	70.3492	ug/l	0.4	55691.93	
Mo	95	115	He	9.4560	ug/l	0.8	42133.89	
Mo	98	115	He	9.5883	ug/l	0.4	72909.03	
Ag	107	115	He	0.1919	ug/l	3.4	3260.34	
Ag	109	115	He	0.1878	ug/l	3.2	3118.09	
Cd	111	115	He	0.4662	ug/l	5.6	951.03	
Cd	114	115	He	0.5418	ug/l	2.9	2919.43	
[Pb]	206	175	He	11.9974	ug/l	0.5	153146.13	
[Pb]	207	175	He	11.6800	ug/l	0.6	126046.98	
Pb	208	175	He	11.7542	ug/l	0.8	591151.31	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	383206.83	0.2	465634.11	82.3	
Sc	45	No Gas	8903581.03	1.7	9033699.36	98.56	
Ge	72	H2	1898573.88	2.0	2007352.98	94.58	
Sc	45	He	211128.31	0.6	207415.29	101.79	
Ge	72	He	194923.31	1.1	208403.74	93.53	
In	115	He	2122395.89	0.5	2241849.28	94.67	
Lu	175	He	5255143.82	1.3	5577447.69	94.22	
Th	232	He	8583168.21	1.5	9174642.57	93.55	

Duplicate Sample Report

Sample Name	KQ2411923-03
File Name	033_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:36:10
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	032_
Default Text	ARE ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	548270573.77	24210.8291	ug/l	3.6	6.55	
Se	77	H2	2227.82	2.0782	ug/l	12.5		< 5X MRL
Se	78	H2	1623.08	1.4174	ug/l	3.5		< 5X MRL
Cr	52	He	353282.63	61.7941	ug/l	2.1	7.07	
Cr	53	He	43581.31	60.7438	ug/l	1.1	7.91	
Ni	60	He	165828.73	53.5272	ug/l	1.9	19.11	
Ni	62	He	26682.97	54.2521	ug/l	2.3	16.12	
Cu	63	He	1001443.54	109.1400	ug/l	1.0	18.26	
Cu	65	He	502957.72	109.7725	ug/l	0.4	18.4	
Zn	66	He	210471.94	168.7657	ug/l	0.4	15.68	
As	75	He	31354.98	39.7000	ug/l	1.1	55.7	Dup Fail
Mo	95	He	17322.37	3.8958	ug/l	2.5	83.29	Dup Fail
Mo	98	He	29614.00	3.9035	ug/l	1.6	84.27	Dup Fail
Ag	107	He	3033.63	0.1789	ug/l	7.5		< 5X MRL
Ag	109	He	3099.21	0.1873	ug/l	5.3		< 5X MRL
Cd	111	He	782.35	0.3842	ug/l	3.0	19.27	
Cd	114	He	2628.38	0.4888	ug/l	1.5	10.29	
[Pb]	206	He	126820.70	9.7724	ug/l	0.3	20.44	Dup Fail
[Pb]	207	He	104890.45	9.5614	ug/l	2.4	19.95	
Pb	208	He	490628.14	9.5960	ug/l	1.5	20.22	Dup Fail

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	384415.61	1.5	465634.11	82.56	59.55	125.44	
Sc	45	No Gas	8881065.20	2.3	9033699.36	98.31	59.55	125.44	
Ge	72	H2	1917459.86	0.3	2007352.98	95.52	59.55	125.44	
Sc	45	He	204652.22	0.9	207415.29	98.67	59.55	125.44	
Ge	72	He	194439.44	1.2	208403.74	93.3	59.55	125.44	
In	115	He	2116466.11	1.7	2241849.28	94.41	59.55	125.44	
Lu	175	He	5341880.90	1.1	5577447.69	95.78	59.55	125.44	
Th	232	He	8461916.33	2.0	9174642.57	92.23	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411923-04

File Name 034_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:38:44

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 032_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	33972.8176	ug/l	3.8	779399933.47	800	1015.25	Flag
Se	77	H2	205.5088	ug/l	2.4	73580.39	200	101.3	
Se	78	H2	203.9612	ug/l	1.2	227984.86	200	100.95	
Cr	52	He	156.9008	ug/l	0.5	881777.81	80	113.22	
Cr	53	He	153.0944	ug/l	0.8	107602.15	80	109.18	
Ni	60	He	274.6814	ug/l	0.7	836921.53	200	104.92	
Ni	62	He	271.6772	ug/l	0.7	131412.42	200	103.96	
Cu	63	He	229.8125	ug/l	1.4	2074826.44	100	98.73	
Cu	65	He	215.3517	ug/l	0.7	970831.04	100	83.33	
Zn	66	He	422.0144	ug/l	0.9	517747.18	200	112.26	
As	75	He	258.5237	ug/l	1.2	200846.58	200	94.09	
Mo	95	He	213.8607	ug/l	0.9	933529.79	200	102.2	
Mo	98	He	236.9513	ug/l	1.2	1765371.32	200	113.68	
Ag	107	He	19.6485	ug/l	0.3	324158.26	20	97.28	
Ag	109	He	19.6658	ug/l	0.4	317792.34	20	97.39	
Cd	111	He	21.7614	ug/l	1.4	43368.96	20	106.48	
Cd	114	He	20.9062	ug/l	0.9	109581.49	20	101.82	
[Pb]	206	He	221.0428	ug/l	1.0	2755933.85	200	104.52	
[Pb]	207	He	221.9527	ug/l	0.9	2339934.14	200	105.14	
Pb	208	He	220.7302	ug/l	0.5	10843990.96	200	104.49	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	402892.89	0.6	465634.11	86.53	
Sc	45	No Gas	9001493.26	1.7	9033699.36	99.64	
Ge	72	H2	1900312.42	1.8	2007352.98	94.67	
Sc	45	He	204678.72	0.3	207415.29	98.68	
Ge	72	He	191333.36	0.4	208403.74	91.81	
In	115	He	2080528.29	0.5	2241849.28	92.8	
Lu	175	He	5136650.49	0.6	5577447.69	92.1	
Th	232	He	8438057.79	1.4	9174642.57	91.97	

Sample Report

Sample Name K2407895-002

File Name 035SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:41:14

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	12983.9721	ug/l	5.6	288950095.18	
Se	77	72	H2	0.8292	ug/l	14.2	1773.43	
Se	78	72	H2	0.2362	ug/l	14.2	289.00	
Cr	52	72	He	23.0969	ug/l	0.5	133102.12	
Cr	53	72	He	23.0301	ug/l	2.2	16804.85	
Ni	60	72	He	14.7952	ug/l	0.7	46143.79	
Ni	62	72	He	14.8632	ug/l	3.9	7362.73	
Cu	63	72	He	94.1286	ug/l	0.6	867780.26	
Cu	65	72	He	94.1339	ug/l	0.5	433323.60	
Zn	66	72	He	65.2040	ug/l	1.0	81759.22	
As	75	72	He	2.5915	ug/l	4.4	2071.46	
Mo	95	115	He	1.8446	ug/l	3.7	8302.12	
Mo	98	115	He	1.9021	ug/l	3.2	14594.20	
Ag	107	115	He	0.0504	ug/l	3.6	885.58	
Ag	109	115	He	0.0455	ug/l	11.8	776.69	
Cd	111	115	He	0.1286	ug/l	3.9	266.67	
Cd	114	115	He	0.2282	ug/l	2.3	1252.38	
[Pb]	206	175	He	2.5291	ug/l	1.4	32105.67	
[Pb]	207	175	He	2.4685	ug/l	1.5	26481.64	
Pb	208	175	He	2.4646	ug/l	1.3	123259.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	378270.62	1.2	465634.11	81.24	
Sc	45	No Gas	8734231.88	2.1	9033699.36	96.68	
Ge	72	H2	1904736.38	0.5	2007352.98	94.89	
Sc	45	He	200119.50	0.7	207415.29	96.48	
Ge	72	He	195333.64	0.3	208403.74	93.73	
In	115	He	2138239.99	1.5	2241849.28	95.38	
Lu	175	He	5211464.38	1.1	5577447.69	93.44	
Th	232	He	8639438.20	2.3	9174642.57	94.17	

Sample Report

Sample Name K2407895-003

File Name 036SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:43:48

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	15002.1115	ug/l	5.7	344460910.76	
Se	77	72	H2	0.5297	ug/l	20.6	1714.42	
Se	78	72	H2	0.1557	ug/l	9.6	204.33	
Cr	52	72	He	26.6430	ug/l	0.7	157032.79	
Cr	53	72	He	25.8205	ug/l	2.3	19241.88	
Ni	60	72	He	18.0190	ug/l	0.8	57487.55	
Ni	62	72	He	17.8962	ug/l	2.7	9066.89	
Cu	63	72	He	79.6258	ug/l	1.1	751315.27	
Cu	65	72	He	80.0536	ug/l	1.1	377163.62	
Zn	66	72	He	70.0546	ug/l	1.2	89893.86	
As	75	72	He	2.2423	ug/l	4.0	1836.44	
Mo	95	115	He	1.8259	ug/l	0.2	8324.35	
Mo	98	115	He	1.8389	ug/l	4.6	14291.73	
Ag	107	115	He	0.0490	ug/l	18.5	871.14	
Ag	109	115	He	0.0455	ug/l	2.4	787.80	
Cd	111	115	He	0.1330	ug/l	5.7	279.17	
Cd	114	115	He	0.2374	ug/l	1.9	1318.72	
[Pb]	206	175	He	4.1088	ug/l	1.3	53519.08	
[Pb]	207	175	He	4.0079	ug/l	1.9	44127.36	
Pb	208	175	He	4.0288	ug/l	1.1	206762.76	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	386924.42	0.5	465634.11	83.1	
Sc	45	No Gas	9009629.36	1.7	9033699.36	99.73	
Ge	72	H2	1957932.56	1.5	2007352.98	97.54	
Sc	45	He	207210.84	0.4	207415.29	99.9	
Ge	72	He	199925.20	0.9	208403.74	95.93	
In	115	He	2165952.68	1.4	2241849.28	96.61	
Lu	175	He	5355118.68	1.1	5577447.69	96.01	
Th	232	He	8727104.66	1.1	9174642.57	95.12	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 037_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:46:22

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	268.5062	ug/l	2.5	6066605.73	107.4	
Se	77	72	H2	25.2875	ug/l	4.9	10604.63	101.15	
Se	78	72	H2	24.8074	ug/l	3.4	28430.64	99.23	
Cr	52	72	He	25.7034	ug/l	0.8	149022.57	102.81	
Cr	53	72	He	25.2664	ug/l	1.7	18526.62	101.07	
Ni	60	72	He	25.3852	ug/l	0.4	79602.53	101.54	
Ni	62	72	He	24.5109	ug/l	2.1	12205.49	98.04	
Cu	63	72	He	25.3488	ug/l	1.4	235420.03	101.4	
Cu	65	72	He	25.2258	ug/l	1.0	116987.21	100.9	
Zn	66	72	He	25.3280	ug/l	0.7	32035.46	101.31	
As	75	72	He	24.8530	ug/l	1.3	19856.86	99.41	
Mo	95	115	He	12.3516	ug/l	1.3	55286.31	98.81	
Mo	98	115	He	12.5061	ug/l	1.6	95534.06	100.05	
Ag	107	115	He	12.4399	ug/l	0.9	210364.78	99.52	
Ag	109	115	He	12.5227	ug/l	0.1	207421.20	100.18	
Cd	111	115	He	24.9447	ug/l	1.1	50954.80	99.78	
Cd	114	115	He	24.8628	ug/l	1.0	133570.07	99.45	
[Pb]	206	175	He	24.0775	ug/l	0.7	304736.68	96.31	
[Pb]	207	175	He	23.8853	ug/l	0.8	255611.23	95.54	
Pb	208	175	He	24.0511	ug/l	0.7	1199439.69	96.2	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	394723.92	1.6	465634.11	84.77	
Sc	45	No Gas	8850057.71	1.0	9033699.36	97.97	
Ge	72	H2	1948022.35	3.0	2007352.98	97.04	
Sc	45	He	201318.17	0.8	207415.29	97.06	
Ge	72	He	196626.21	0.3	208403.74	94.35	
In	115	He	2132477.36	0.4	2241849.28	95.12	
Lu	175	He	5212896.18	0.9	5577447.69	93.46	
Th	232	He	8535548.21	1.0	9174642.57	93.03	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 038_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:48:57

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1129	ug/l	23.6	5672.08	
Se	77	72	H2	0.3339	ug/l	21.8	1071.71	
Se	78	72	H2	0.0075	ug/l	25.0	22.00	
Cr	52	72	He	-0.0122	ug/l	N/A	563.35	
Cr	53	72	He	0.2014	ug/l	15.2	435.56	
Ni	60	72	He	-0.0089	ug/l	N/A	93.33	
Ni	62	72	He	-0.0073	ug/l	N/A	18.89	
Cu	63	72	He	0.0021	ug/l	120.7	245.56	
Cu	65	72	He	-0.0031	ug/l	N/A	108.89	
Zn	66	72	He	0.0457	ug/l	93.6	152.22	
As	75	72	He	0.0328	ug/l	28.8	39.00	
Mo	95	115	He	0.0102	ug/l	16.8	65.55	
Mo	98	115	He	0.0095	ug/l	31.2	97.78	
Ag	107	115	He	0.0011	ug/l	80.1	45.56	
Ag	109	115	He	0.0020	ug/l	5.8	51.11	
Cd	111	115	He	0.0063	ug/l	35.0	14.67	
Cd	114	115	He	0.0056	ug/l	27.7	48.17	
[Pb]	206	175	He	0.0011	ug/l	40.7	118.89	
[Pb]	207	175	He	-0.0001	ug/l	N/A	74.44	
Pb	208	175	He	0.0009	ug/l	89.4	431.11	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	245915.44	2.8	465634.11	52.81	Flag
Sc	45	No Gas	4969467.72	5.8	9033699.36	55.01	Flag
Ge	72	H2	1276585.47	2.0	2007352.98	63.6	
Sc	45	He	180892.36	6.8	207415.29	87.21	
Ge	72	He	179671.65	6.1	208403.74	86.21	
In	115	He	1948300.48	9.3	2241849.28	86.91	
Lu	175	He	4732890.78	7.3	5577447.69	84.86	
Th	232	He	7776714.26	8.7	9174642.57	84.76	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 040_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:35:58

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.4636	ug/l	2.3	18336.28	
Se	77	72	H2	0.4558	ug/l	41.0	1773.43	
Se	78	72	H2	0.0449	ug/l	20.4	80.67	
Cr	52	72	He	0.2089	ug/l	42.7	2014.58	
Cr	53	72	He	0.1762	ug/l	22.5	487.79	
Ni	60	72	He	0.4232	ug/l	38.6	1546.76	CCB Failed
Ni	62	72	He	0.4098	ug/l	28.4	242.22	CCB Failed
Cu	63	72	He	0.2412	ug/l	38.6	2644.68	CCB Failed
Cu	65	72	He	0.2129	ug/l	50.5	1192.28	CCB Failed
Zn	66	72	He	0.5324	ug/l	42.1	830.03	
As	75	72	He	0.3590	ug/l	39.7	322.34	
Mo	95	115	He	0.0014	ug/l	79.1	34.44	
Mo	98	115	He	0.0024	ug/l	56.4	55.56	
Ag	107	115	He	0.0236	ug/l	38.5	453.34	
Ag	109	115	He	0.0223	ug/l	26.9	414.46	
Cd	111	115	He	0.0465	ug/l	34.7	103.83	CCB Failed
Cd	114	115	He	0.0436	ug/l	34.7	272.33	CCB Failed
[Pb]	206	175	He	0.3095	ug/l	46.0	4205.13	CCB Failed
[Pb]	207	175	He	0.3263	ug/l	42.1	3726.09	CCB Failed
Pb	208	175	He	0.3168	ug/l	43.3	16915.34	CCB Failed

Sample uptake problem

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	403417.50	0.7	465634.11	86.64	
Sc	45	No Gas	8995232.42	0.7	9033699.36	99.57	
Ge	72	H2	2057375.61	0.9	2007352.98	102.49	
Sc	45	He	216382.83	0.6	207415.29	104.32	
Ge	72	He	208845.28	0.7	208403.74	100.21	
In	115	He	2256485.93	1.2	2241849.28	100.65	
Lu	175	He	5437501.73	1.0	5577447.69	97.49	
Th	232	He	8558402.37	1.3	9174642.57	93.28	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 041_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:39:26

Sample Type CCB

Comment —

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0004	ug/l	1908.2	7753.96	
Se	77	72	H2	0.3708	ug/l	31.0	1751.43	
Se	78	72	H2	-0.0018	ug/l	N/A	24.33	
Cr	52	72	He	0.0001	ug/l	31511.2	731.13	
Cr	53	72	He	-0.0151	ug/l	N/A	341.12	
Ni	60	72	He	0.0049	ug/l	143.4	153.34	
Ni	62	72	He	-0.0191	ug/l	N/A	15.56	
Cu	63	72	He	-0.0085	ug/l	N/A	180.00	
Cu	65	72	He	-0.0041	ug/l	N/A	122.23	
Zn	66	72	He	-0.0010	ug/l	N/A	114.45	
As	75	72	He	0.0043	ug/l	199.1	21.00	
Mo	95	115	He	0.0007	ug/l	699.0	31.11	
Mo	98	115	He	0.0011	ug/l	56.6	44.44	
Ag	107	115	He	-0.0009	ug/l	N/A	16.67	
Ag	109	115	He	0.0007	ug/l	45.5	35.56	
Cd	111	115	He	0.0018	ug/l	106.1	7.17	
Cd	114	115	He	0.0024	ug/l	102.7	38.00	
[Pb]	206	175	He	-0.0017	ug/l	N/A	100.00	
[Pb]	207	175	He	-0.0007	ug/l	N/A	78.89	
Pb	208	175	He	-0.0004	ug/l	N/A	426.67	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	398180.35	0.9	465634.11	85.51	
Sc	45	No Gas	9044310.47	0.9	9033699.36	100.12	
Ge	72	H2	2068739.64	1.0	2007352.98	103.06	
Sc	45	He	214281.32	1.7	207415.29	103.31	
Ge	72	He	208714.55	0.5	208403.74	100.15	
In	115	He	2242144.07	1.8	2241849.28	100.01	
Lu	175	He	5412305.76	0.9	5577447.69	97.04	
Th	232	He	8649638.20	1.0	9174642.57	94.28	

Prep Blank (PB) Report

Sample Name	KQ2411923-05
File Name	042_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:42:01
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.5704	ug/l	3.8	43837.39	
Se	77	72	H2	0.3618	ug/l	70.0	1733.42	
Se	78	72	H2	-0.0014	ug/l	N/A	24.67	
Cr	52	72	He	0.0846	ug/l	12.1	1242.27	
Cr	53	72	He	0.1101	ug/l	47.2	434.45	
Ni	60	72	He	0.0442	ug/l	22.1	282.23	
Ni	62	72	He	0.0299	ug/l	108.0	41.11	
Cu	63	72	He	0.0287	ug/l	6.1	543.35	
Cu	65	72	He	0.0303	ug/l	34.9	290.00	
Zn	66	72	He	0.1207	ug/l	26.8	275.56	
As	75	72	He	-0.0015	ug/l	N/A	16.00	
Mo	95	115	He	0.0214	ug/l	21.5	131.11	
Mo	98	115	He	0.0168	ug/l	33.0	174.45	
Ag	107	115	He	-0.0006	ug/l	N/A	22.22	
Ag	109	115	He	-0.0001	ug/l	N/A	22.22	
Cd	111	115	He	0.0019	ug/l	66.5	7.67	
Cd	114	115	He	0.1107	ug/l	0.3	665.68	Flag
[Pb]	206	175	He	0.1532	ug/l	6.0	2173.50	Flag
[Pb]	207	175	He	0.1434	ug/l	6.2	1710.11	Flag
Pb	208	175	He	0.1519	ug/l	1.7	8463.21	Flag

3L
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QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	394475.05	0.5	465634.11	84.72	
Sc	45	No Gas	9019710.75	0.9	9033699.36	99.85	
Ge	72	H2	2052084.78	0.8	2007352.98	102.23	
Sc	45	He	212899.81	1.0	207415.29	102.64	
Ge	72	He	207479.65	0.8	208403.74	99.56	
In	115	He	2297555.83	2.6	2241849.28	102.48	
Lu	175	He	5512397.70	1.3	5577447.69	98.83	
Th	232	He	8701685.50	1.5	9174642.57	94.84	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411923-06
File Name	043_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:44:36
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	202.7213	ug/l	5.4	4656148.84	200	101.36	
Se	77	72	H2	50.0729	ug/l	0.2	20289.04	50	100.15	
Se	78	72	H2	50.0778	ug/l	1.2	59640.45	50	100.16	
Cr	52	72	He	20.2553	ug/l	0.8	123524.90	20	101.28	
Cr	53	72	He	19.6686	ug/l	2.0	15229.00	20	98.34	
Ni	60	72	He	50.8840	ug/l	0.4	167493.77	50	101.77	
Ni	62	72	He	50.3550	ug/l	1.2	26315.70	50	100.71	
Cu	63	72	He	24.4469	ug/l	0.8	238521.41	25	97.79	
Cu	65	72	He	24.7952	ug/l	0.7	120806.83	25	99.18	
Zn	66	72	He	48.5283	ug/l	2.2	64372.33	50	97.06	
As	75	72	He	49.3147	ug/l	1.1	41375.85	50	98.63	
Mo	95	115	He	50.0733	ug/l	1.1	234002.24	50	100.15	
Mo	98	115	He	50.0089	ug/l	2.2	398830.68	50	100.02	
Ag	107	115	He	4.9554	ug/l	1.3	87534.47	5	99.11	
Ag	109	115	He	4.9631	ug/l	1.6	85866.53	5	99.26	
Cd	111	115	He	5.0821	ug/l	0.5	10845.20	5	101.64	
Cd	114	115	He	4.8620	ug/l	1.3	27298.03	5	97.24	
[Pb]	206	175	He	45.9837	ug/l	1.6	605121.50	50	91.97	
[Pb]	207	175	He	46.5509	ug/l	1.3	517982.04	50	93.1	
Pb	208	175	He	46.4401	ug/l	1.5	2408017.11	50	92.88	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	392506.60	1.7	465634.11	84.3	
Sc	45	No Gas	8998427.97	1.6	9033699.36	99.61	
Ge	72	H2	2023874.30	0.7	2007352.98	100.82	
Sc	45	He	206997.85	1.6	207415.29	99.8	
Ge	72	He	206567.87	0.7	208403.74	99.12	
In	115	He	2227264.26	1.3	2241849.28	99.35	
Lu	175	He	5421893.53	2.1	5577447.69	97.21	
Th	232	He	8616777.79	1.2	9174642.57	93.92	

RC
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Reference Sample Report

Sample Name	K2407895-001
File Name	044_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:47:11
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	10519.7658	ug/l	3.0	239189154.94	
Se	77	72	H2	0.7658	ug/l	24.1	1827.77	
Se	78	72	H2	0.1372	ug/l	13.2	185.67	
Cr	52	72	He	18.0218	ug/l	2.0	108866.47	
Cr	53	72	He	17.4597	ug/l	0.9	13419.69	
Ni	60	72	He	13.4586	ug/l	1.7	43944.67	
Ni	62	72	He	13.1628	ug/l	4.9	6826.95	
Cu	63	72	He	55.8149	ug/l	0.8	538698.42	
Cu	65	72	He	55.9828	ug/l	0.9	269800.14	
Zn	66	72	He	42.6254	ug/l	1.4	55987.54	
As	75	72	He	1.8418	ug/l	3.2	1546.41	
Mo	95	115	He	1.1853	ug/l	1.9	5553.18	
Mo	98	115	He	1.2040	ug/l	3.7	9609.49	
Ag	107	115	He	0.0310	ug/l	13.3	577.79	
Ag	109	115	He	0.0355	ug/l	8.6	635.57	
Cd	111	115	He	0.0977	ug/l	3.4	211.17	
Cd	114	115	He	0.2016	ug/l	0.5	1152.71	
[Pb]	206	175	He	2.2009	ug/l	0.6	29415.81	
[Pb]	207	175	He	2.1184	ug/l	0.9	23927.51	
Pb	208	175	He	2.1615	ug/l	1.4	113803.75	

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QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	383497.13	0.9	465634.11	82.36	
Sc	45	No Gas	8914895.20	1.5	9033699.36	98.68	
Ge	72	H2	1989060.96	2.3	2007352.98	99.09	
Sc	45	He	213017.68	1.3	207415.29	102.7	
Ge	72	He	204471.56	1.2	208403.74	98.11	
In	115	He	2221894.94	2.5	2241849.28	99.11	
Lu	175	He	5483774.78	1.3	5577447.69	98.32	
Th	232	He	8800373.41	0.5	9174642.57	95.92	

Duplicate Sample Report

Sample Name	KQ2411923-01
File Name	045_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:49:45
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	044_
Default Text	ARF ACRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	275309011.28	11790.9286	ug/l	4.9	11.4	
Se	77	H2	1909.44	0.8803	ug/l	3.6		< 5X MRL
Se	78	H2	369.34	0.2877	ug/l	5.4		< 5X MRL
Cr	52	He	184407.28	30.4669	ug/l	0.5	51.33	Dup Fail
Cr	53	He	22959.74	30.0580	ug/l	1.1	53.03	Dup Fail
Ni	60	He	60749.86	18.5328	ug/l	1.2	31.72	Dup Fail
Ni	62	He	9350.38	17.9610	ug/l	4.1	30.83	Dup Fail
Cu	63	He	675014.69	69.6197	ug/l	0.9	22.01	Dup Fail
Cu	65	He	337818.48	69.7779	ug/l	0.7	21.94	Dup Fail
Zn	66	He	66428.98	50.3564	ug/l	0.8	16.63	
As	75	He	2548.20	3.0350	ug/l	4.5		< 5X MRL
Mo	95	He	7064.88	1.5145	ug/l	3.0	24.38	Dup Fail
Mo	98	He	11938.76	1.5009	ug/l	2.5	21.95	Dup Fail
Ag	107	He	717.80	0.0391	ug/l	14.1		< 5X MRL
Ag	109	He	713.35	0.0401	ug/l	2.7		< 5X MRL
Cd	111	He	240.83	0.1120	ug/l	6.5		< 5X MRL
Cd	114	He	1247.72	0.2193	ug/l	3.1	8.41	
[Pb]	206	He	27110.56	2.0102	ug/l	6.6	9.06	
[Pb]	207	He	22522.07	1.9754	ug/l	1.9	6.99	
Pb	208	He	104557.85	1.9873	ug/l	3.0	9.41	

3C 8/14/24

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	392064.03	1.1	465634.11	84.2	59.55	125.44	
Sc	45	No Gas	9161264.64	1.3	9033699.36	101.41	59.55	125.44	
Ge	72	H2	2029859.02	3.2	2007352.98	101.12	59.55	125.44	
Sc	45	He	213347.63	0.5	207415.29	102.86	59.55	125.44	
Ge	72	He	205417.62	0.3	208403.74	98.57	59.55	125.44	
In	115	He	2215099.48	1.5	2241849.28	98.81	59.55	125.44	
Lu	175	He	5534542.56	1.5	5577447.69	99.23	59.55	125.44	
Th	232	He	8899170.70	0.7	9174642.57	97	59.55	125.44	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 046_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:54:11

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	254.0267	ug/l	4.9	5860610.18	101.61	
Se	77	72	H2	25.2919	ug/l	2.3	9583.04	101.17	
Se	78	72	H2	24.1438	ug/l	2.5	25000.67	96.58	
Cr	52	72	He	25.0002	ug/l	0.5	138409.09	100	
Cr	53	72	He	24.9555	ug/l	1.0	17472.20	99.82	
Ni	60	72	He	24.9367	ug/l	1.3	74701.38	99.75	
Ni	62	72	He	25.0167	ug/l	3.1	11884.17	100.07	
Cu	63	72	He	24.6971	ug/l	0.5	219021.57	98.79	
Cu	65	72	He	24.8377	ug/l	0.6	109971.48	99.35	
Zn	66	72	He	24.8352	ug/l	1.9	30015.31	99.34	
As	75	72	He	24.3451	ug/l	1.9	18564.08	97.38	
Mo	95	115	He	12.4964	ug/l	0.8	52429.73	99.97	
Mo	98	115	He	12.5329	ug/l	0.8	89697.05	100.26	
Ag	107	115	He	12.4034	ug/l	2.8	196380.87	99.23	
Ag	109	115	He	12.3610	ug/l	1.9	191762.40	98.89	
Cd	111	115	He	24.6014	ug/l	1.4	47077.83	98.41	
Cd	114	115	He	24.4536	ug/l	2.1	123039.50	97.81	
[Pb]	206	175	He	23.3281	ug/l	1.7	279048.32	93.31	
[Pb]	207	175	He	23.2516	ug/l	0.4	235264.07	93.01	
Pb	208	175	He	23.2888	ug/l	0.6	1098077.72	93.16	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	401809.39	1.1	465634.11	86.29	
Sc	45	No Gas	9039734.09	1.3	9033699.36	100.07	
Ge	72	H2	1758541.63	1.7	2007352.98	87.61	
Sc	45	He	188112.31	6.0	207415.29	90.69	
Ge	72	He	187755.90	4.9	208403.74	90.09	
In	115	He	1998434.71	5.6	2241849.28	89.14	
Lu	175	He	4929296.05	5.2	5577447.69	88.38	
Th	232	He	7946130.30	4.7	9174642.57	86.61	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 047_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:57:40

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0401	ug/l	27.1	8342.02	
Se	77	72	H2	0.1038	ug/l	131.7	1593.08	
Se	78	72	H2	0.0054	ug/l	73.6	32.00	
Cr	52	72	He	-0.0080	ug/l	N/A	653.35	
Cr	53	72	He	0.0593	ug/l	183.7	381.12	
Ni	60	72	He	-0.0018	ug/l	N/A	125.55	
Ni	62	72	He	-0.0178	ug/l	N/A	15.55	
Cu	63	72	He	-0.0042	ug/l	N/A	213.34	
Cu	65	72	He	-0.0035	ug/l	N/A	120.00	
Zn	66	72	He	0.0036	ug/l	717.4	115.55	
As	75	72	He	0.0132	ug/l	62.5	27.33	
Mo	95	115	He	0.0039	ug/l	99.1	44.44	
Mo	98	115	He	0.0030	ug/l	62.0	57.78	
Ag	107	115	He	0.0014	ug/l	55.8	54.44	
Ag	109	115	He	0.0026	ug/l	58.9	66.67	
Cd	111	115	He	0.0066	ug/l	37.9	16.83	
Cd	114	115	He	0.0069	ug/l	27.0	61.17	
[Pb]	206	175	He	0.0013	ug/l	70.3	137.78	
[Pb]	207	175	He	0.0046	ug/l	70.9	135.56	
Pb	208	175	He	0.0018	ug/l	105.5	533.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	385777.60	1.1	465634.11	82.85	
Sc	45	No Gas	8704874.10	0.5	9033699.36	96.36	
Ge	72	H2	1998634.92	0.6	2007352.98	99.57	
Sc	45	He	202408.85	1.7	207415.29	97.59	
Ge	72	He	199920.07	0.2	208403.74	95.93	
In	115	He	2162977.75	1.4	2241849.28	96.48	
Lu	175	He	5355881.45	1.1	5577447.69	96.03	
Th	232	He	8687360.71	1.0	9174642.57	94.69	

Prep Blank (PB) Report

Sample Name	KQ2411923-05
File Name	048_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:00:16
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.4679	ug/l	8.9	40276.81	
Se	77	72	H2	0.2163	ug/l	113.3	1603.75	
Se	78	72	H2	-0.0036	ug/l	N/A	21.00	
Cr	52	72	He	0.0760	ug/l	18.2	1150.05	
Cr	53	72	He	0.2101	ug/l	21.2	493.34	
Ni	60	72	He	0.0492	ug/l	29.2	288.89	
Ni	62	72	He	0.0456	ug/l	50.6	47.78	
Cu	63	72	He	0.0304	ug/l	14.2	541.12	
Cu	65	72	He	0.0197	ug/l	57.8	230.00	
Zn	66	72	He	0.1303	ug/l	27.0	278.89	
As	75	72	He	0.0074	ug/l	82.5	22.67	
Mo	95	115	He	0.0197	ug/l	28.9	115.56	
Mo	98	115	He	0.0232	ug/l	3.9	213.34	
Ag	107	115	He	0.0000	ug/l	5728.5	31.11	
Ag	109	115	He	0.0000	ug/l	N/A	22.22	
Cd	111	115	He	0.0018	ug/l	46.2	7.00	
Cd	114	115	He	0.1142	ug/l	1.8	644.51	Flag
[Pb]	206	175	He	0.1514	ug/l	3.5	2105.72	Flag
[Pb]	207	175	He	0.1496	ug/l	1.1	1743.45	Flag
Pb	208	175	He	0.1537	ug/l	2.2	8384.31	Flag

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	387113.68	1.2	465634.11	83.14	
Sc	45	No Gas	8769338.26	3.0	9033699.36	97.07	
Ge	72	H2	1960392.77	2.1	2007352.98	97.66	
Sc	45	He	207184.06	1.9	207415.29	99.89	
Ge	72	He	200610.83	0.1	208403.74	96.26	
In	115	He	2157925.52	0.6	2241849.28	96.26	
Lu	175	He	5400241.59	1.3	5577447.69	96.82	
Th	232	He	8764162.37	0.4	9174642.57	95.53	

Sample Report

Sample Name K2407895-004

File Name 049SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:02:52

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	25967.1123	ug/l	2.8	607141291.43	
Se	77	72	H2	0.9133	ug/l	15.4	1964.45	
Se	78	72	H2	0.2855	ug/l	4.7	375.01	
Cr	52	72	He	45.4776	ug/l	0.3	276117.01	
Cr	53	72	He	45.2400	ug/l	0.6	34532.08	
Ni	60	72	He	44.5466	ug/l	1.2	146464.62	
Ni	62	72	He	44.0118	ug/l	0.8	22976.49	
Cu	63	72	He	88.3717	ug/l	0.6	860504.03	
Cu	65	72	He	89.1543	ug/l	0.5	433471.63	
Zn	66	72	He	143.5297	ug/l	0.2	189955.03	
As	75	72	He	54.4562	ug/l	0.8	45632.62	
Mo	95	115	He	1.5130	ug/l	2.7	7161.58	
Mo	98	115	He	1.4956	ug/l	2.5	12069.97	
Ag	107	115	He	0.2028	ug/l	2.8	3647.09	
Ag	109	115	He	0.2022	ug/l	6.2	3553.74	
Cd	111	115	He	0.1614	ug/l	8.0	350.67	
Cd	114	115	He	0.2600	ug/l	1.4	1496.24	
[Pb]	206	175	He	8.3533	ug/l	0.6	110837.68	
[Pb]	207	175	He	8.0382	ug/l	0.8	90170.76	
Pb	208	175	He	8.1659	ug/l	0.6	426918.19	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	404686.89	0.7	465634.11	86.91	
Sc	45	No Gas	9166327.14	2.3	9033699.36	101.47	
Ge	72	H2	2075202.49	0.8	2007352.98	103.38	
Sc	45	He	215714.75	0.7	207415.29	104	
Ge	72	He	206316.99	0.7	208403.74	99	
In	115	He	2247292.35	0.7	2241849.28	100.24	
Lu	175	He	5460984.50	1.0	5577447.69	97.91	
Th	232	He	8832313.62	1.0	9174642.57	96.27	

Sample Report

Sample Name K2407895-005

File Name 050SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:05:27

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	37599.3242	ug/l	5.2	911050168.24	
Se	77	72	H2	1.6509	ug/l	23.2	2112.80	
Se	78	72	H2	0.5789	ug/l	3.4	689.02	
Cr	52	72	He	65.1144	ug/l	1.6	390135.52	
Cr	53	72	He	64.0810	ug/l	2.2	48165.49	
Ni	60	72	He	72.2243	ug/l	0.2	234472.15	
Ni	62	72	He	70.7155	ug/l	1.4	36448.45	
Cu	63	72	He	209.1562	ug/l	2.5	2011111.72	
Cu	65	72	He	191.9465	ug/l	1.5	921568.19	
Zn	66	72	He	207.5643	ug/l	1.2	271258.28	
As	75	72	He	108.2759	ug/l	0.8	89600.62	
Mo	95	115	He	1.9592	ug/l	3.4	9048.05	
Mo	98	115	He	1.9752	ug/l	2.4	15561.72	
Ag	107	115	He	0.3029	ug/l	3.6	5303.10	
Ag	109	115	He	0.3001	ug/l	1.2	5139.73	
Cd	111	115	He	0.2474	ug/l	3.0	523.34	
Cd	114	115	He	0.3313	ug/l	5.7	1854.77	
[Pb]	206	175	He	13.3427	ug/l	0.7	174596.21	
[Pb]	207	175	He	12.9624	ug/l	1.3	143410.95	
Pb	208	175	He	13.0989	ug/l	0.6	675385.63	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	432310.25	0.2	465634.11	92.84	
Sc	45	No Gas	9505207.40	0.6	9033699.36	105.22	
Ge	72	H2	1949392.01	2.4	2007352.98	97.11	
Sc	45	He	212659.59	0.6	207415.29	102.53	
Ge	72	He	203776.23	0.6	208403.74	97.78	
In	115	He	2195562.00	2.0	2241849.28	97.94	
Lu	175	He	5387919.37	0.8	5577447.69	96.6	
Th	232	He	8893399.45	1.2	9174642.57	96.93	

Sample Report

Sample Name K2407895-006

File Name 051SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:08:00

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	31853.2916	ug/l	2.0	758010760.99	
Se	77	72	H2	1.2493	ug/l	8.0	2008.79	
Se	78	72	H2	0.4196	ug/l	1.1	517.01	
Cr	52	72	He	54.4003	ug/l	2.1	322633.94	
Cr	53	72	He	54.1378	ug/l	0.7	40319.08	
Ni	60	72	He	54.7245	ug/l	0.5	175822.40	
Ni	62	72	He	54.7397	ug/l	0.9	27922.69	
Cu	63	72	He	107.7761	ug/l	1.0	1025596.38	
Cu	65	72	He	108.0374	ug/l	0.8	513333.95	
Zn	66	72	He	175.1432	ug/l	0.7	226506.13	
As	75	72	He	75.3055	ug/l	0.4	61666.98	
Mo	95	115	He	0.9818	ug/l	2.0	4560.65	
Mo	98	115	He	0.9780	ug/l	1.3	7742.96	
Ag	107	115	He	0.2053	ug/l	8.4	3613.76	
Ag	109	115	He	0.1979	ug/l	5.8	3405.93	
Cd	111	115	He	0.1641	ug/l	2.7	349.17	
Cd	114	115	He	0.2536	ug/l	5.0	1430.40	
[Pb]	206	175	He	14.3612	ug/l	2.2	189287.94	
[Pb]	207	175	He	13.8804	ug/l	2.0	154694.60	
Pb	208	175	He	14.0829	ug/l	2.5	731389.78	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	422459.08	1.2	465634.11	90.73	
Sc	45	No Gas	9331595.18	1.2	9033699.36	103.3	
Ge	72	H2	1991430.96	1.3	2007352.98	99.21	
Sc	45	He	211195.68	0.9	207415.29	101.82	
Ge	72	He	201635.92	0.5	208403.74	96.75	
In	115	He	2200899.40	0.9	2241849.28	98.17	
Lu	175	He	5428665.06	2.0	5577447.69	97.33	
Th	232	He	8750890.29	1.0	9174642.57	95.38	

Sample Report

Sample Name	K2407895-007
File Name	052SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:10:35
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	19999.2708	ug/l	4.3	477285101.04	
Se	77	72	H2	3.5535	ug/l	7.7	2777.23	
Se	78	72	H2	3.2297	ug/l	1.4	3704.08	
Cr	52	72	He	20.6024	ug/l	0.9	123089.29	
Cr	53	72	He	19.5360	ug/l	1.5	14823.04	
Ni	60	72	He	62.3579	ug/l	0.3	201079.24	
Ni	62	72	He	62.8620	ug/l	0.7	32182.31	
Cu	63	72	He	55.7294	ug/l	0.9	532416.52	
Cu	65	72	He	56.1752	ug/l	0.8	267978.75	
Zn	66	72	He	408.9279	ug/l	0.4	530684.87	
As	75	72	He	36.7568	ug/l	0.9	30220.97	
Mo	95	115	He	13.2058	ug/l	0.8	61437.50	
Mo	98	115	He	13.2450	ug/l	1.6	105154.33	
Ag	107	115	He	0.1454	ug/l	6.3	2586.89	
Ag	109	115	He	0.1391	ug/l	3.9	2416.86	
Cd	111	115	He	3.2931	ug/l	0.8	6994.80	
Cd	114	115	He	3.2691	ug/l	1.1	18275.04	
[Pb]	206	175	He	7.8147	ug/l	0.4	102716.64	
[Pb]	207	175	He	7.5672	ug/l	0.8	84088.73	
Pb	208	175	He	7.6629	ug/l	0.8	396848.19	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407351.61	0.2	465634.11	87.48	
Sc	45	No Gas	9363306.02	1.4	9033699.36	103.65	
Ge	72	H2	1936979.99	1.9	2007352.98	96.49	
Sc	45	He	211054.73	0.4	207415.29	101.75	
Ge	72	He	202388.97	0.5	208403.74	97.11	
In	115	He	2216621.53	1.6	2241849.28	98.87	
Lu	175	He	5409125.20	0.4	5577447.69	96.98	
Th	232	He	8937499.03	1.1	9174642.57	97.42	

Sample Report

Sample Name K2407895-008

File Name 053SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:13:09

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	16183.9962	ug/l	4.8	377241745.01	
Se	77	72	H2	1.4455	ug/l	7.8	2062.46	
Se	78	72	H2	1.2000	ug/l	3.0	1418.73	
Cr	52	72	He	17.2852	ug/l	2.0	104808.26	
Cr	53	72	He	16.8042	ug/l	1.8	12973.82	
Ni	60	72	He	31.7443	ug/l	0.8	103844.64	
Ni	62	72	He	30.7482	ug/l	1.3	15971.93	
Cu	63	72	He	32.8970	ug/l	1.4	318732.92	
Cu	65	72	He	32.8873	ug/l	1.9	159106.65	
Zn	66	72	He	196.9293	ug/l	1.3	259149.86	
As	75	72	He	19.2553	ug/l	1.7	16057.53	
Mo	95	115	He	7.0858	ug/l	1.6	33227.31	
Mo	98	115	He	7.0811	ug/l	0.6	56667.77	
Ag	107	115	He	0.1928	ug/l	3.0	3444.83	
Ag	109	115	He	0.1886	ug/l	2.7	3294.80	
Cd	111	115	He	1.8608	ug/l	1.2	3984.31	
Cd	114	115	He	1.8485	ug/l	2.1	10422.44	
[Pb]	206	175	He	5.9399	ug/l	2.3	79098.22	
[Pb]	207	175	He	5.7750	ug/l	3.0	65007.40	
Pb	208	175	He	5.8254	ug/l	2.1	305664.11	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	403750.54	1.8	465634.11	86.71	
Sc	45	No Gas	9145634.63	1.5	9033699.36	101.24	
Ge	72	H2	1973948.88	0.7	2007352.98	98.34	
Sc	45	He	208832.43	2.1	207415.29	100.68	
Ge	72	He	205198.39	1.0	208403.74	98.46	
In	115	He	2233423.27	1.0	2241849.28	99.62	
Lu	175	He	5480488.81	2.8	5577447.69	98.26	
Th	232	He	8808104.45	0.3	9174642.57	96	

Sample Report

Sample Name K2407895-009

File Name 054SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:15:43

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	18770.6508	ug/l	2.3	449022817.71	
Se	77	72	H2	4.0615	ug/l	8.7	2979.60	
Se	78	72	H2	3.6393	ug/l	2.0	4201.19	
Cr	52	72	He	16.3236	ug/l	0.3	99987.75	
Cr	53	72	He	16.0501	ug/l	2.2	12527.93	
Ni	60	72	He	90.1866	ug/l	0.7	297634.86	
Ni	62	72	He	89.8368	ug/l	2.0	47068.68	
Cu	63	72	He	53.4544	ug/l	1.3	522778.11	
Cu	65	72	He	53.5889	ug/l	0.6	261700.94	
Zn	66	72	He	818.0007	ug/l	1.0	1086574.37	
As	75	72	He	55.4677	ug/l	0.3	46675.42	
Mo	95	115	He	24.2835	ug/l	1.0	116432.90	
Mo	98	115	He	24.3370	ug/l	0.8	199159.61	
Ag	107	115	He	0.1237	ug/l	7.5	2274.62	
Ag	109	115	He	0.1278	ug/l	7.3	2291.28	
Cd	111	115	He	9.6578	ug/l	1.2	21139.23	
Cd	114	115	He	9.3329	ug/l	0.4	53737.75	
[Pb]	206	175	He	18.9781	ug/l	0.8	251680.71	
[Pb]	207	175	He	18.5179	ug/l	1.7	207622.76	
Pb	208	175	He	18.7424	ug/l	1.0	979353.15	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	403503.27	0.9	465634.11	86.66	
Sc	45	No Gas	9381106.85	0.6	9033699.36	103.85	
Ge	72	H2	1951071.52	2.0	2007352.98	97.2	
Sc	45	He	215988.50	0.7	207415.29	104.13	
Ge	72	He	207179.50	0.4	208403.74	99.41	
In	115	He	2284860.64	0.6	2241849.28	101.92	
Lu	175	He	5461676.86	1.2	5577447.69	97.92	
Th	232	He	8892842.78	0.8	9174642.57	96.93	

Sample Report

Sample Name K2407895-010

File Name 055SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:18:18

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	22805.5182	ug/l	3.8	565637257.52	
Se	77	72	H2	2.9089	ug/l	12.5	2672.21	
Se	78	72	H2	2.1536	ug/l	0.3	2600.54	
Cr	52	72	He	38.0423	ug/l	2.1	230757.66	
Cr	53	72	He	37.6207	ug/l	1.7	28733.82	
Ni	60	72	He	64.6115	ug/l	1.2	212093.23	
Ni	62	72	He	64.8596	ug/l	1.3	33804.24	
Cu	63	72	He	89.3074	ug/l	1.4	868406.18	
Cu	65	72	He	89.7262	ug/l	1.4	435651.23	
Zn	66	72	He	274.5869	ug/l	1.3	362793.88	
As	75	72	He	28.6973	ug/l	1.8	24021.50	
Mo	95	115	He	3.5181	ug/l	2.1	16533.76	
Mo	98	115	He	3.5338	ug/l	3.4	28322.92	
Ag	107	115	He	0.1848	ug/l	8.4	3304.80	
Ag	109	115	He	0.1905	ug/l	5.8	3329.25	
Cd	111	115	He	1.1734	ug/l	2.2	2516.36	
Cd	114	115	He	1.2503	ug/l	2.1	7066.51	
[Pb]	206	175	He	13.5098	ug/l	3.1	177956.01	
[Pb]	207	175	He	13.0135	ug/l	1.9	144980.50	
Pb	208	175	He	13.2144	ug/l	2.4	685956.77	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	424740.89	0.6	465634.11	91.22	
Sc	45	No Gas	9728167.11	1.8	9033699.36	107.69	
Ge	72	H2	2032317.90	0.9	2007352.98	101.24	
Sc	45	He	218355.22	0.4	207415.29	105.27	
Ge	72	He	206059.27	1.7	208403.74	98.88	
In	115	He	2236811.25	2.9	2241849.28	99.78	
Lu	175	He	5426752.00	2.9	5577447.69	97.3	
Th	232	He	8889527.99	1.1	9174642.57	96.89	

Sample Report

Sample Name K2407895-011

File Name 056SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:20:52

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	34095.7195	ug/l	3.2	642027512.27	
Se	77	72	H2	2.3105	ug/l	8.3	2388.17	
Se	78	72	H2	1.8754	ug/l	2.4	2212.48	
Cr	52	72	He	39.9866	ug/l	1.3	240527.21	
Cr	53	72	He	38.9403	ug/l	1.3	29486.24	
Ni	60	72	He	74.2199	ug/l	0.3	241616.01	
Ni	62	72	He	73.3699	ug/l	0.9	37920.65	
Cu	63	72	He	92.4286	ug/l	0.9	891390.14	
Cu	65	72	He	92.5552	ug/l	0.8	445693.68	
Zn	66	72	He	308.9592	ug/l	1.0	404836.34	
As	75	72	He	30.9870	ug/l	0.6	25725.29	
Mo	95	115	He	4.6410	ug/l	1.9	21223.47	
Mo	98	115	He	4.7243	ug/l	2.8	36856.10	
Ag	107	115	He	0.1488	ug/l	2.8	2599.12	
Ag	109	115	He	0.1467	ug/l	5.7	2501.33	
Cd	111	115	He	1.5653	ug/l	3.7	3266.16	
Cd	114	115	He	1.5999	ug/l	2.6	8795.50	
[Pb]	206	175	He	12.4789	ug/l	0.6	166334.47	
[Pb]	207	175	He	12.0005	ug/l	1.3	135241.71	
Pb	208	175	He	12.2258	ug/l	1.4	642088.08	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	368684.26	3.2	465634.11	79.18	
Sc	45	No Gas	7392541.65	4.7	9033699.36	81.83	
Ge	72	H2	1983445.06	2.9	2007352.98	98.81	
Sc	45	He	218282.09	0.8	207415.29	105.24	
Ge	72	He	204341.47	0.4	208403.74	98.05	
In	115	He	2177421.97	2.3	2241849.28	97.13	
Lu	175	He	5487952.70	0.6	5577447.69	98.4	
Th	232	He	8971374.66	2.1	9174642.57	97.78	

Sample Report

Sample Name	K2407895-012
File Name	057SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:23:26
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	21042.5484	ug/l	3.5	506580477.65	
Se	77	72	H2	2.7674	ug/l	13.5	2569.87	
Se	78	72	H2	2.3280	ug/l	2.3	2756.89	
Cr	52	72	He	34.9045	ug/l	0.4	210131.15	
Cr	53	72	He	34.8799	ug/l	0.6	26458.02	
Ni	60	72	He	60.6477	ug/l	1.1	197519.58	
Ni	62	72	He	60.1111	ug/l	3.6	31080.35	
Cu	63	72	He	84.9551	ug/l	1.5	819598.67	
Cu	65	72	He	85.3829	ug/l	1.3	411310.90	
Zn	66	72	He	271.0120	ug/l	0.4	355261.34	
As	75	72	He	28.8868	ug/l	1.3	23990.79	
Mo	95	115	He	3.5930	ug/l	1.3	16854.11	
Mo	98	115	He	3.6292	ug/l	0.7	29040.77	
Ag	107	115	He	0.1638	ug/l	1.3	2931.39	
Ag	109	115	He	0.1608	ug/l	11.0	2808.04	
Cd	111	115	He	1.1526	ug/l	1.6	2467.19	
Cd	114	115	He	1.1940	ug/l	1.9	6735.70	
[Pb]	206	175	He	13.2895	ug/l	1.0	176024.11	
[Pb]	207	175	He	12.8283	ug/l	1.3	143660.16	
Pb	208	175	He	12.9986	ug/l	1.0	678393.90	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	417688.27	0.3	465634.11	89.7	
Sc	45	No Gas	9443409.07	1.2	9033699.36	104.54	
Ge	72	H2	1995371.38	2.5	2007352.98	99.4	
Sc	45	He	213060.11	1.6	207415.29	102.72	
Ge	72	He	204413.37	0.4	208403.74	98.09	
In	115	He	2231962.31	1.8	2241849.28	99.56	
Lu	175	He	5453790.48	0.9	5577447.69	97.78	
Th	232	He	8930687.16	1.3	9174642.57	97.34	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 058_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:26:01

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	265.9963	ug/l	2.1	6209587.39	106.4	
Se	77	72	H2	24.5131	ug/l	1.6	10652.00	98.05	
Se	78	72	H2	24.4010	ug/l	1.2	28845.98	97.6	
Cr	52	72	He	25.4554	ug/l	1.6	153166.60	101.82	
Cr	53	72	He	25.5265	ug/l	0.1	19422.08	102.11	
Ni	60	72	He	25.1733	ug/l	1.1	81926.85	100.69	
Ni	62	72	He	24.8945	ug/l	0.9	12865.98	99.58	
Cu	63	72	He	24.8192	ug/l	0.8	239215.22	99.28	
Cu	65	72	He	24.9884	ug/l	1.1	120263.94	99.95	
Zn	66	72	He	25.3436	ug/l	0.8	33266.66	101.37	
As	75	72	He	24.8757	ug/l	0.8	20627.11	99.5	
Mo	95	115	He	12.4196	ug/l	4.2	57947.30	99.36	
Mo	98	115	He	12.4196	ug/l	3.5	98909.91	99.36	
Ag	107	115	He	12.2397	ug/l	3.8	215769.63	97.92	
Ag	109	115	He	12.2817	ug/l	2.8	212112.16	98.25	
Cd	111	115	He	24.4277	ug/l	3.4	52022.06	97.71	
Cd	114	115	He	24.2510	ug/l	3.3	135831.48	97	
[Pb]	206	175	He	23.1366	ug/l	1.9	302564.63	92.55	
[Pb]	207	175	He	23.3054	ug/l	1.4	257700.82	93.22	
Pb	208	175	He	23.3609	ug/l	1.8	1203716.61	93.44	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	398865.73	0.6	465634.11	85.66	
Sc	45	No Gas	9144644.91	0.4	9033699.36	101.23	
Ge	72	H2	2008347.63	2.2	2007352.98	100.05	
Sc	45	He	207120.43	1.2	207415.29	99.86	
Ge	72	He	204061.82	0.7	208403.74	97.92	
In	115	He	2224808.00	3.2	2241849.28	99.24	
Lu	175	He	5386945.20	1.8	5577447.69	96.58	
Th	232	He	8834382.99	1.3	9174642.57	96.29	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 059_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:28:36

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1789	ug/l	3.1	11462.66	
Se	77	72	H2	0.1107	ug/l	41.9	1553.74	
Se	78	72	H2	0.0053	ug/l	41.5	31.00	
Cr	52	72	He	-0.0014	ug/l	N/A	687.80	
Cr	53	72	He	0.1008	ug/l	71.3	408.90	
Ni	60	72	He	0.0073	ug/l	67.9	153.34	
Ni	62	72	He	0.0000	ug/l	N/A	24.45	
Cu	63	72	He	0.0025	ug/l	30.5	274.45	
Cu	65	72	He	0.0002	ug/l	1447.3	136.67	
Zn	66	72	He	0.0356	ug/l	51.1	155.56	
As	75	72	He	0.0246	ug/l	9.2	36.33	
Mo	95	115	He	0.0050	ug/l	63.0	50.00	
Mo	98	115	He	0.0085	ug/l	12.3	101.11	
Ag	107	115	He	0.0023	ug/l	128.6	71.11	
Ag	109	115	He	0.0025	ug/l	53.0	65.55	
Cd	111	115	He	0.0085	ug/l	18.5	21.00	
Cd	114	115	He	0.0087	ug/l	10.9	71.83	
[Pb]	206	175	He	0.0012	ug/l	199.7	132.22	
[Pb]	207	175	He	0.0031	ug/l	85.5	115.55	
Pb	208	175	He	0.0031	ug/l	13.4	585.56	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	389615.11	0.7	465634.11	83.67	
Sc	45	No Gas	8735421.59	1.2	9033699.36	96.7	
Ge	72	H2	1945846.24	0.8	2007352.98	96.94	
Sc	45	He	201611.81	0.6	207415.29	97.2	
Ge	72	He	198681.90	0.7	208403.74	95.34	
In	115	He	2185118.65	0.2	2241849.28	97.47	
Lu	175	He	5190774.66	1.3	5577447.69	93.07	
Th	232	He	8682509.24	1.2	9174642.57	94.64	

Prep Blank (PB) Report

Sample Name	KQ2411912-05
File Name	060_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:31:11
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.8364	ug/l	5.2	33668.62	
Se	77	72	H2	-0.2154	ug/l	N/A	875.36	
Se	78	72	H2	-0.0040	ug/l	N/A	12.33	
Cr	52	72	He	0.1063	ug/l	33.9	1144.49	
Cr	53	72	He	0.1717	ug/l	43.4	400.01	
Ni	60	72	He	0.0492	ug/l	21.9	250.00	
Ni	62	72	He	0.0542	ug/l	64.7	45.56	
Cu	63	72	He	0.0250	ug/l	10.0	423.34	
Cu	65	72	He	0.0144	ug/l	37.8	177.78	
Zn	66	72	He	0.1767	ug/l	23.3	293.34	
As	75	72	He	0.0079	ug/l	67.3	20.00	
Mo	95	115	He	0.0157	ug/l	41.0	88.89	
Mo	98	115	He	0.0200	ug/l	13.5	168.89	
Ag	107	115	He	-0.0012	ug/l	N/A	10.00	
Ag	109	115	He	0.0001	ug/l	618.5	21.11	
Cd	111	115	He	0.0025	ug/l	19.4	7.50	
Cd	114	115	He	0.1201	ug/l	4.2	608.34	Flag
[Pb]	206	175	He	0.0033	ug/l	79.4	147.78	
[Pb]	207	175	He	0.0068	ug/l	79.6	146.67	
Pb	208	175	He	0.0043	ug/l	16.8	601.13	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	267406.49	0.8	465634.11	57.43	Flag
Sc	45	No Gas	6080539.62	1.0	9033699.36	67.31	
Ge	72	H2	1186402.70	1.3	2007352.98	59.1	Flag
Sc	45	He	180182.41	7.9	207415.29	86.87	
Ge	72	He	173072.48	5.8	208403.74	83.05	
In	115	He	1941055.39	7.2	2241849.28	86.58	
Lu	175	He	4855385.92	5.8	5577447.69	87.05	
Th	232	He	7817111.34	6.4	9174642.57	85.2	

8/14/24

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411912-06
File Name	061_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:33:48
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	210.0143	ug/l	3.7	4545835.51	200	105.01	
Se	77	72	H2	49.8437	ug/l	2.9	17558.36	50	99.69	
Se	78	72	H2	50.9785	ug/l	1.7	52767.92	50	101.96	
Cr	52	72	He	21.1944	ug/l	2.1	122994.20	20	105.97	
Cr	53	72	He	21.2318	ug/l	3.1	15619.33	20	106.16	
Ni	60	72	He	53.6294	ug/l	2.2	168013.12	50	107.26	
Ni	62	72	He	52.3599	ug/l	1.7	26046.38	50	104.72	
Cu	63	72	He	25.9181	ug/l	1.1	240699.24	25	103.67	
Cu	65	72	He	26.2996	ug/l	1.7	121954.96	25	105.2	
Zn	66	72	He	51.8850	ug/l	2.3	65505.36	50	103.77	
As	75	72	He	52.1921	ug/l	1.4	41684.60	50	104.38	
Mo	95	115	He	53.6997	ug/l	1.6	239373.43	50	107.4	
Mo	98	115	He	54.1165	ug/l	1.3	411744.61	50	108.23	
Ag	107	115	He	5.3288	ug/l	3.5	89777.59	5	106.58	
Ag	109	115	He	5.4103	ug/l	1.7	89286.31	5	108.21	
Cd	111	115	He	5.4762	ug/l	2.1	11146.06	5	109.52	
Cd	114	115	He	5.2883	ug/l	1.1	28323.40	5	105.77	
[Pb]	206	175	He	49.6798	ug/l	1.4	648100.38	50	99.36	
[Pb]	207	175	He	51.3027	ug/l	0.8	565929.70	50	102.61	
Pb	208	175	He	51.0343	ug/l	0.7	2623482.87	50	102.07	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	404587.75	0.8	465634.11	86.89	
Sc	45	No Gas	8477789.94	1.0	9033699.36	93.85	
Ge	72	H2	1759363.02	1.7	2007352.98	87.65	
Sc	45	He	189442.50	2.1	207415.29	91.33	
Ge	72	He	196643.42	1.2	208403.74	94.36	
In	115	He	2124767.00	1.6	2241849.28	94.78	
Lu	175	He	5374540.76	1.1	5577447.69	96.36	
Th	232	He	9136338.82	0.0	9174642.57	99.58	

Reference Sample Report

Sample Name	K2407891-001
File Name	062_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:36:23
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	22404.3746	ug/l	4.2	513863232.91	
Se	77	72	H2	2.4246	ug/l	5.2	2085.47	
Se	78	72	H2	3.0752	ug/l	2.5	3099.62	
Cr	52	72	He	113.2396	ug/l	0.6	655960.01	
Cr	53	72	He	110.9097	ug/l	2.2	80412.90	
Ni	60	72	He	85.9791	ug/l	1.4	270023.39	
Ni	62	72	He	86.2756	ug/l	0.5	43018.18	
Cu	63	72	He	79.9487	ug/l	1.0	743947.14	
Cu	65	72	He	80.0887	ug/l	0.6	372121.81	
Zn	66	72	He	172.2819	ug/l	0.4	217860.69	
As	75	72	He	26.2816	ug/l	1.1	21054.59	
Mo	95	115	He	2.9672	ug/l	2.1	13987.02	
Mo	98	115	He	2.9600	ug/l	1.0	23805.88	
Ag	107	115	He	0.1441	ug/l	4.5	2594.67	
Ag	109	115	He	0.1455	ug/l	2.7	2557.99	
Cd	111	115	He	1.0257	ug/l	0.7	2206.48	
Cd	114	115	He	1.0840	ug/l	0.3	6147.81	
[Pb]	206	175	He	5.9203	ug/l	1.1	80229.42	
[Pb]	207	175	He	5.6968	ug/l	0.3	65268.54	
Pb	208	175	He	5.7689	ug/l	1.0	308011.09	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407549.09	0.8	465634.11	87.53	
Sc	45	No Gas	8997429.37	1.1	9033699.36	99.6	
Ge	72	H2	1701476.36	1.0	2007352.98	84.76	
Sc	45	He	204464.17	1.7	207415.29	98.58	
Ge	72	He	197156.61	0.4	208403.74	94.6	
In	115	He	2242544.04	0.6	2241849.28	100.03	
Lu	175	He	5574818.80	1.3	5577447.69	99.95	
Th	232	He	9265466.53	1.2	9174642.57	100.99	

Duplicate Sample Report

Sample Name	KQ2411912-01
File Name	063_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:38:58
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	062_
Default Text	ARL ALSRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	549576422.60	23773.2173	ug/l	2.8	5.93	
Se	77	H2	1983.45	2.3571	ug/l	2.1		< 5X MRL
Se	78	H2	2889.58	2.9857	ug/l	3.3		< 5X MRL
Cr	52	He	912433.68	159.6441	ug/l	0.2	34.01	Dup Fail
Cr	53	He	110863.91	155.1056	ug/l	0.4	33.23	Dup Fail
Ni	60	He	307933.98	99.3508	ug/l	0.7	14.43	
Ni	62	He	48987.19	99.5484	ug/l	2.0	14.29	
Cu	63	He	791756.86	86.2105	ug/l	0.4	7.54	
Cu	65	He	395214.33	86.1847	ug/l	0.5	7.33	
Zn	66	He	223141.38	178.7877	ug/l	0.9	3.71	
As	75	He	20102.80	25.4254	ug/l	1.2	3.31	
Mo	95	He	12503.63	2.7140	ug/l	1.3	8.91	
Mo	98	He	21745.30	2.7668	ug/l	0.4	6.75	
Ag	107	He	2502.44	0.1422	ug/l	3.3		< 5X MRL
Ag	109	He	2395.75	0.1394	ug/l	3.1		< 5X MRL
Cd	111	He	1961.45	0.9331	ug/l	3.4	9.45	
Cd	114	He	5566.60	1.0043	ug/l	0.5	7.64	
[Pb]	206	He	71584.89	5.3563	ug/l	1.6	10	
[Pb]	207	He	58170.34	5.1491	ug/l	2.2	10.1	
Pb	208	He	277026.13	5.2611	ug/l	1.8	9.21	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	420003.63	0.9	465634.11	90.2	59.55	125.44	
Sc	45	No Gas	9066200.75	0.6	9033699.36	100.36	59.55	125.44	
Ge	72	H2	1634474.00	3.9	2007352.98	81.42	59.55	125.44	
Sc	45	He	203384.05	0.4	207415.29	98.06	59.55	125.44	
Ge	72	He	194584.37	0.6	208403.74	93.37	59.55	125.44	
In	115	He	2191137.72	0.6	2241849.28	97.74	59.55	125.44	
Lu	175	He	5498291.73	2.4	5577447.69	98.58	59.55	125.44	
Th	232	He	9333170.28	1.2	9174642.57	101.73	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name	KQ2411912-02
File Name	064_Spk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:41:32
Sample Type	Spike
Comment	5X
ISTD Ref FileName	003CALB.d
QC Ref File Name	062_ ARF.
Default Text	ÁLKLS NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	24321.6040	ug/l	5.1	549469684.83	800	239.65	Flag
Se	77	H2	200.3782	ug/l	0.8	62174.05	200	98.98	
Se	78	H2	204.3004	ug/l	0.8	197770.25	200	100.61	
Cr	52	He	317.0979	ug/l	1.9	1752814.97	80	254.82	Flag
Cr	53	He	285.3092	ug/l	0.6	197029.39	80	218	Flag
Ni	60	He	308.5920	ug/l	0.3	925098.75	200	111.31	
Ni	62	He	307.5469	ug/l	0.3	146363.91	200	110.64	
Cu	63	He	208.6632	ug/l	0.9	1853607.77	100	128.71	Flag
Cu	65	He	194.2117	ug/l	0.2	861462.29	100	114.12	
Zn	66	He	400.4450	ug/l	0.6	483385.80	200	114.08	
As	75	He	237.1415	ug/l	0.6	181270.22	200	105.43	
Mo	95	He	208.7568	ug/l	0.1	935253.82	200	102.89	
Mo	98	He	233.9243	ug/l	0.8	1788706.11	200	115.48	
Ag	107	He	19.9123	ug/l	1.0	337148.19	20	98.84	
Ag	109	He	19.8716	ug/l	1.5	329547.39	20	98.63	
Cd	111	He	21.9252	ug/l	0.5	44846.69	20	104.5	
Cd	114	He	21.1386	ug/l	0.4	113717.48	20	100.27	
[Pb]	206	He	222.8549	ug/l	1.2	2910071.06	200	108.47	
[Pb]	207	He	222.4532	ug/l	4.6	2455467.75	200	108.38	
Pb	208	He	222.2156	ug/l	2.7	11432458.29	200	108.22	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407791.58	1.1	465634.11	87.58	
Sc	45	No Gas	8865001.32	1.5	9033699.36	98.13	
Ge	72	H2	1645427.85	2.5	2007352.98	81.97	
Sc	45	He	196388.08	0.3	207415.29	94.68	
Ge	72	He	188254.08	0.5	208403.74	90.33	
In	115	He	2135294.84	0.6	2241849.28	95.25	
Lu	175	He	5380607.98	1.5	5577447.69	96.47	
Th	232	He	9180861.32	1.3	9174642.57	100.07	

Reference Sample Report

Sample Name	K2407891-014
File Name	065_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:44:02
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	26235.4653	ug/l	6.6	583104439.05	
Se	77	72	H2	0.7897	ug/l	6.6	1533.74	
Se	78	72	H2	1.3236	ug/l	3.8	1313.39	
Cr	52	72	He	58.4119	ug/l	0.9	333305.16	
Cr	53	72	He	57.4378	ug/l	2.0	41137.57	
Ni	60	72	He	49.7224	ug/l	1.6	153717.97	
Ni	62	72	He	49.9206	ug/l	1.9	24503.02	
Cu	63	72	He	112.4492	ug/l	1.0	1029624.85	
Cu	65	72	He	113.6019	ug/l	1.2	519361.19	
Zn	66	72	He	152.2950	ug/l	0.7	189526.44	
As	75	72	He	37.6144	ug/l	1.5	29646.32	
Mo	95	115	He	2.9149	ug/l	6.0	13429.89	
Mo	98	115	He	2.9433	ug/l	2.5	23157.22	
Ag	107	115	He	0.1764	ug/l	10.1	3095.87	
Ag	109	115	He	0.1635	ug/l	4.6	2805.81	
Cd	111	115	He	0.2773	ug/l	3.7	585.51	
Cd	114	115	He	0.3752	ug/l	3.0	2096.30	
[Pb]	206	175	He	8.2255	ug/l	1.2	109615.87	
[Pb]	207	175	He	7.9961	ug/l	1.0	90090.40	
Pb	208	175	He	8.0979	ug/l	0.8	425218.69	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	411383.93	1.7	465634.11	88.35	
Sc	45	No Gas	8723021.88	1.7	9033699.36	96.56	
Ge	72	H2	1660526.81	3.2	2007352.98	82.72	
Sc	45	He	202548.18	1.9	207415.29	97.65	
Ge	72	He	194016.44	0.7	208403.74	93.1	
In	115	He	2193312.07	2.0	2241849.28	97.83	
Lu	175	He	5485065.76	1.4	5577447.69	98.34	
Th	232	He	9230017.57	1.1	9174642.57	100.6	

Duplicate Sample Report

Sample Name	KQ2411912-03
File Name	066_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:46:37
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	065_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	568812599.62	25100.9810	ug/l	4.1	4.42	
Se	77	H2	1326.39	0.0694	ug/l	532.3		< 5X MRL
Se	78	H2	823.02	0.8128	ug/l	8.3		< 5X MRL
Cr	52	He	343427.29	59.3139	ug/l	0.7	1.53	
Cr	53	He	42058.63	57.8715	ug/l	1.5	0.75	
Ni	60	He	157968.24	50.3525	ug/l	0.9	1.26	
Ni	62	He	25057.14	50.3037	ug/l	0.5	0.76	
Cu	63	He	1089170.62	117.2218	ug/l	0.3	4.16	
Cu	65	He	544776.68	117.4250	ug/l	0.5	3.31	
Zn	66	He	174304.45	138.0193	ug/l	1.0	9.83	
As	75	He	29219.90	36.5357	ug/l	1.7	2.91	
Mo	95	He	9827.40	2.1459	ug/l	4.0	30.39	Dup Fail
Mo	98	He	16752.90	2.1445	ug/l	3.2	31.4	Dup Fail
Ag	107	He	3094.76	0.1775	ug/l	2.1		< 5X MRL
Ag	109	He	2969.18	0.1742	ug/l	1.1		< 5X MRL
Cd	111	He	599.84	0.2860	ug/l	0.9	3.12	
Cd	114	He	2142.31	0.3863	ug/l	1.9	2.9	
[Pb]	206	He	125791.14	9.3209	ug/l	2.0	12.48	
[Pb]	207	He	103859.40	9.1046	ug/l	3.3	12.96	
Pb	208	He	490458.46	9.2242	ug/l	2.1	13	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	426719.99	0.6	465634.11	91.64	59.55	125.44	
Sc	45	No Gas	8889262.70	0.9	9033699.36	98.4	59.55	125.44	
Ge	72	H2	1679057.85	2.7	2007352.98	83.65	59.55	125.44	
Sc	45	He	206830.00	1.6	207415.29	99.72	59.55	125.44	
Ge	72	He	196879.93	0.6	208403.74	94.47	59.55	125.44	
In	115	He	2177710.44	1.7	2241849.28	97.14	59.55	125.44	
Lu	175	He	5556370.61	2.5	5577447.69	99.62	59.55	125.44	
Th	232	He	9254009.45	1.4	9174642.57	100.87	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411912-04

File Name 067_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:49:11

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 065_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	21177.6302	ug/l	3.9	475798647.76	800	-632.23	Flag
Se	77	H2	191.9405	ug/l	1.7	62197.44	200	95.58	
Se	78	H2	194.7686	ug/l	1.9	196712.77	200	96.72	
Cr	52	He	130.5597	ug/l	0.7	745852.44	80	90.18	
Cr	53	He	128.7090	ug/l	1.3	91991.11	80	89.09	
Ni	60	He	244.4291	ug/l	0.2	756956.93	200	97.35	
Ni	62	He	243.7545	ug/l	0.6	119835.51	200	96.92	
Cu	63	He	188.2468	ug/l	1.8	1727361.95	100	75.8	
Cu	65	He	169.1802	ug/l	0.8	775188.81	100	55.58	Flag
Zn	66	He	305.1338	ug/l	0.4	380511.14	200	76.42	
As	75	He	228.6318	ug/l	0.8	180529.90	200	95.51	
Mo	95	He	206.8699	ug/l	1.3	929956.84	200	101.98	
Mo	98	He	229.6115	ug/l	2.9	1761518.96	200	113.33	
Ag	107	He	19.8031	ug/l	1.6	336446.66	20	98.13	
Ag	109	He	19.9851	ug/l	1.0	332586.42	20	99.11	
Cd	111	He	21.0944	ug/l	1.3	43295.40	20	104.09	
Cd	114	He	21.1593	ug/l	1.3	114217.46	20	103.92	
[Pb]	206	He	261.4328	ug/l	3.6	3489620.07	200	126.6	Flag
[Pb]	207	He	263.0950	ug/l	2.8	2969863.35	200	127.55	Flag
Pb	208	He	261.3977	ug/l	1.9	13750815.91	200	126.65	Flag

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	418955.21	0.7	465634.11	89.98	
Sc	45	No Gas	8811504.10	0.9	9033699.36	97.54	
Ge	72	H2	1717052.64	2.3	2007352.98	85.54	
Sc	45	He	195688.64	0.7	207415.29	94.35	
Ge	72	He	194465.47	0.6	208403.74	93.31	
In	115	He	2142789.10	1.2	2241849.28	95.58	
Lu	175	He	5501331.03	1.4	5577447.69	98.64	
Th	232	He	9260046.32	1.5	9174642.57	100.93	

Sample Report

Sample Name	K2407891-002
File Name	068SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:51:42
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	26541.9978	ug/l	5.8	597686447.36	
Se	77	72	H2	2.8527	ug/l	1.7	2174.81	
Se	78	72	H2	3.5234	ug/l	2.1	3475.36	
Cr	52	72	He	147.7662	ug/l	0.3	842814.41	
Cr	53	72	He	144.4879	ug/l	0.6	103077.34	
Ni	60	72	He	109.5357	ug/l	1.4	338758.46	
Ni	62	72	He	108.5177	ug/l	1.1	53282.06	
Cu	63	72	He	85.2168	ug/l	0.4	780969.17	
Cu	65	72	He	85.7464	ug/l	0.5	392392.23	
Zn	66	72	He	223.1993	ug/l	0.9	277964.68	
As	75	72	He	28.0079	ug/l	1.5	22096.26	
Mo	95	115	He	2.9657	ug/l	2.5	13353.15	
Mo	98	115	He	3.0313	ug/l	1.5	23284.01	
Ag	107	115	He	0.1279	ug/l	4.3	2203.49	
Ag	109	115	He	0.1286	ug/l	1.5	2161.27	
Cd	111	115	He	1.3152	ug/l	2.2	2701.72	
Cd	114	115	He	1.3654	ug/l	1.2	7389.65	
[Pb]	206	175	He	6.5667	ug/l	2.6	86928.63	
[Pb]	207	175	He	6.3065	ug/l	2.8	70583.94	
Pb	208	175	He	6.3719	ug/l	2.1	332388.86	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	410132.67	0.5	465634.11	88.08	
Sc	45	No Gas	8836919.93	2.1	9033699.36	97.82	
Ge	72	H2	1666983.37	2.8	2007352.98	83.04	
Sc	45	He	201776.37	0.2	207415.29	97.28	
Ge	72	He	194176.15	0.7	208403.74	93.17	
In	115	He	2141945.12	0.5	2241849.28	95.54	
Lu	175	He	5448967.28	2.6	5577447.69	97.7	
Th	232	He	9177848.82	2.4	9174642.57	100.03	

Sample Report

Sample Name K2407891-003

File Name 069SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:54:17

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	27654.9905	ug/l	2.7	632908845.96	
Se	77	72	H2	2.6821	ug/l	5.5	2118.80	
Se	78	72	H2	3.5793	ug/l	2.4	3524.71	
Cr	52	72	He	162.7737	ug/l	0.7	930776.35	
Cr	53	72	He	159.5494	ug/l	1.2	114081.71	
Ni	60	72	He	112.3404	ug/l	0.7	348348.43	
Ni	62	72	He	112.7058	ug/l	2.4	55481.20	
Cu	63	72	He	89.1335	ug/l	1.0	818967.78	
Cu	65	72	He	90.1931	ug/l	1.3	413779.01	
Zn	66	72	He	206.1903	ug/l	0.4	257445.61	
As	75	72	He	28.8519	ug/l	0.5	22821.53	
Mo	95	115	He	4.3157	ug/l	3.1	19488.05	
Mo	98	115	He	4.4261	ug/l	1.1	34105.84	
Ag	107	115	He	0.1330	ug/l	1.8	2296.84	
Ag	109	115	He	0.1415	ug/l	3.7	2384.63	
Cd	111	115	He	1.1333	ug/l	2.4	2336.50	
Cd	114	115	He	1.1877	ug/l	1.0	6454.76	
[Pb]	206	175	He	6.4228	ug/l	1.1	85691.78	
[Pb]	207	175	He	6.1836	ug/l	2.0	69742.41	
Pb	208	175	He	6.2493	ug/l	0.9	328522.98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	411002.55	0.7	465634.11	88.27	
Sc	45	No Gas	8974505.75	0.9	9033699.36	99.34	
Ge	72	H2	1663283.51	3.2	2007352.98	82.86	
Sc	45	He	203367.42	1.6	207415.29	98.05	
Ge	72	He	194678.75	0.4	208403.74	93.41	
In	115	He	2149760.01	0.9	2241849.28	95.89	
Lu	175	He	5489583.95	1.2	5577447.69	98.42	
Th	232	He	9303068.82	1.0	9174642.57	101.4	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	070_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:57:24
Sample Type	CCV
Comment	—
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	268.0827	ug/l	4.3	5670568.81	107.23	
Se	77	72	H2	23.4641	ug/l	1.4	8852.64	93.86	
Se	78	72	H2	24.5310	ug/l	2.2	25013.64	98.12	
Cr	52	72	He	25.1638	ug/l	0.2	145415.21	100.66	
Cr	53	72	He	24.9338	ug/l	1.3	18225.21	99.74	
Ni	60	72	He	25.3069	ug/l	1.0	79087.19	101.23	
Ni	62	72	He	25.6426	ug/l	3.6	12725.89	102.57	
Cu	63	72	He	24.9844	ug/l	1.4	231251.32	99.94	
Cu	65	72	He	25.3553	ug/l	0.5	117186.14	101.42	
Zn	66	72	He	25.1351	ug/l	0.6	31684.73	100.54	
As	75	72	He	24.8283	ug/l	0.5	19770.08	99.31	
Mo	95	115	He	12.3915	ug/l	1.2	56456.79	99.13	
Mo	98	115	He	12.5598	ug/l	1.7	97653.65	100.48	
Ag	107	115	He	12.4608	ug/l	0.4	214495.38	99.69	
Ag	109	115	He	12.4879	ug/l	2.1	210518.72	99.9	
Cd	111	115	He	24.7033	ug/l	1.2	51362.73	98.81	
Cd	114	115	He	24.4998	ug/l	1.2	133969.44	98	
[Pb]	206	175	He	23.3428	ug/l	0.7	311905.73	93.37	
[Pb]	207	175	He	23.6528	ug/l	1.3	267218.47	94.61	
Pb	208	175	He	23.7044	ug/l	1.1	1248007.03	94.82	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	391576.86	1.8	465634.11	84.1	
Sc	45	No Gas	8287132.17	0.7	9033699.36	91.74	
Ge	72	H2	1732065.18	0.9	2007352.98	86.29	
Sc	45	He	192277.36	2.7	207415.29	92.7	
Ge	72	He	195958.38	0.3	208403.74	94.03	
In	115	He	2170696.42	1.2	2241849.28	96.83	
Lu	175	He	5503373.11	0.7	5577447.69	98.67	
Th	232	He	9288236.11	1.8	9174642.57	101.24	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	071_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:59:58
Sample Type	CCB
Comment	—
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1239	ug/l	8.4	9440.35	
Se	77	72	H2	-0.7647	ug/l	N/A	1097.04	
Se	78	72	H2	0.0135	ug/l	63.0	35.67	
Cr	52	72	He	-0.0036	ug/l	N/A	664.46	
Cr	53	72	He	-0.0287	ug/l	N/A	310.00	
Ni	60	72	He	0.0006	ug/l	1171.6	130.00	
Ni	62	72	He	0.0033	ug/l	1027.5	25.56	
Cu	63	72	He	-0.0014	ug/l	N/A	234.45	
Cu	65	72	He	-0.0041	ug/l	N/A	114.45	
Zn	66	72	He	0.0313	ug/l	60.9	147.78	
As	75	72	He	0.0115	ug/l	94.9	25.33	
Mo	95	115	He	0.0062	ug/l	28.2	54.44	
Mo	98	115	He	0.0103	ug/l	39.1	113.34	
Ag	107	115	He	0.0004	ug/l	117.7	37.78	
Ag	109	115	He	0.0001	ug/l	1652.9	23.33	
Cd	111	115	He	0.0084	ug/l	4.1	20.33	
Cd	114	115	He	0.0061	ug/l	7.1	56.33	
[Pb]	206	175	He	0.0018	ug/l	164.9	146.67	
[Pb]	207	175	He	0.0031	ug/l	37.3	122.22	
Pb	208	175	He	0.0026	ug/l	75.7	588.90	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	389144.94	0.3	465634.11	83.57	
Sc	45	No Gas	8052215.79	1.1	9033699.36	89.14	
Ge	72	H2	1723517.64	2.8	2007352.98	85.86	
Sc	45	He	190841.93	2.1	207415.29	92.01	
Ge	72	He	195566.60	0.7	208403.74	93.84	
In	115	He	2144129.02	0.5	2241849.28	95.64	
Lu	175	He	5474726.73	1.8	5577447.69	98.16	
Th	232	He	9116036.95	1.8	9174642.57	99.36	

Prep Blank (PB) Report

Sample Name	KQ2411912-05
File Name	072_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:06:43
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	2.7938	ug/l	7.6	47691.79	
Se	77	72	H2	-0.6785	ug/l	N/A	1162.37	
Se	78	72	H2	-0.0026	ug/l	N/A	20.00	
Cr	52	72	He	0.0787	ug/l	21.0	1142.27	
Cr	53	72	He	0.0512	ug/l	94.0	368.90	
Ni	60	72	He	0.0528	ug/l	16.9	294.45	
Ni	62	72	He	0.0676	ug/l	13.8	57.78	
Cu	63	72	He	0.0258	ug/l	16.1	487.79	
Cu	65	72	He	0.0214	ug/l	44.4	233.34	
Zn	66	72	He	0.1781	ug/l	25.3	333.34	
As	75	72	He	0.0038	ug/l	242.0	19.33	
Mo	95	115	He	0.0174	ug/l	9.4	107.78	
Mo	98	115	He	0.0298	ug/l	36.1	270.01	
Ag	107	115	He	-0.0014	ug/l	N/A	6.67	
Ag	109	115	He	0.0001	ug/l	578.2	24.44	
Cd	111	115	He	0.0026	ug/l	36.7	8.83	
Cd	114	115	He	0.1151	ug/l	4.5	664.35	Flag
[Pb]	206	175	He	0.0035	ug/l	28.5	170.00	
[Pb]	207	175	He	0.0046	ug/l	66.5	138.89	
Pb	208	175	He	0.0041	ug/l	13.4	664.46	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	324368.91	5.4	465634.11	69.66	
Sc	45	No Gas	5996824.62	7.5	9033699.36	66.38	
Ge	72	H2	1781405.00	3.1	2007352.98	88.74	
Sc	45	He	197233.68	1.1	207415.29	95.09	
Ge	72	He	196581.48	0.8	208403.74	94.33	
In	115	He	2208035.63	0.7	2241849.28	98.49	
Lu	175	He	5472496.87	2.4	5577447.69	98.12	
Th	232	He	9096957.78	1.1	9174642.57	99.15	

Sample Report

Sample Name	K2407891-004
File Name	073SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:09:19
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	21731.5046	ug/l	3.5	515576157.29	
Se	77	72	H2	0.9994	ug/l	11.0	1677.75	
Se	78	72	H2	1.7605	ug/l	1.3	1826.44	
Cr	52	72	He	95.2238	ug/l	0.1	557575.59	
Cr	53	72	He	94.1868	ug/l	0.5	69066.91	
Ni	60	72	He	79.1118	ug/l	1.4	251097.86	
Ni	62	72	He	78.5460	ug/l	0.4	39582.03	
Cu	63	72	He	67.0313	ug/l	0.2	630419.38	
Cu	65	72	He	67.4291	ug/l	0.3	316654.84	
Zn	66	72	He	154.0932	ug/l	1.0	196935.43	
As	75	72	He	28.4656	ug/l	0.5	23044.48	
Mo	95	115	He	3.6963	ug/l	2.9	17222.25	
Mo	98	115	He	3.6713	ug/l	2.7	29186.58	
Ag	107	115	He	0.0753	ug/l	3.0	1356.73	
Ag	109	115	He	0.0841	ug/l	8.7	1471.19	
Cd	111	115	He	0.9133	ug/l	4.7	1942.62	
Cd	114	115	He	0.9624	ug/l	4.7	5398.55	
[Pb]	206	175	He	3.6331	ug/l	1.8	48923.88	
[Pb]	207	175	He	3.5278	ug/l	1.8	40158.85	
Pb	208	175	He	3.5685	ug/l	1.5	189330.70	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	419437.91	0.9	465634.11	90.08	
Sc	45	No Gas	9306778.52	1.0	9033699.36	103.02	
Ge	72	H2	1742424.51	3.3	2007352.98	86.8	
Sc	45	He	205756.34	1.3	207415.29	99.2	
Ge	72	He	199249.80	0.8	208403.74	95.61	
In	115	He	2217833.71	1.6	2241849.28	98.93	
Lu	175	He	5535129.36	1.5	5577447.69	99.24	
Th	232	He	9192620.91	1.4	9174642.57	100.2	

Sample Report

Sample Name	K2407891-005
File Name	074SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:11:54
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	22800.4108	ug/l	2.0	549671960.38	
Se	77	72	H2	0.0622	ug/l	195.9	1362.39	
Se	78	72	H2	0.8362	ug/l	3.7	871.02	
Cr	52	72	He	142.5998	ug/l	0.8	818631.76	
Cr	53	72	He	139.8472	ug/l	0.9	100422.68	
Ni	60	72	He	84.7817	ug/l	0.7	263949.83	
Ni	62	72	He	84.6249	ug/l	1.0	41831.81	
Cu	63	72	He	58.4240	ug/l	0.4	538979.21	
Cu	65	72	He	58.3987	ug/l	0.7	269005.15	
Zn	66	72	He	118.8629	ug/l	0.7	149026.90	
As	75	72	He	28.7957	ug/l	0.9	22864.94	
Mo	95	115	He	1.6964	ug/l	2.0	7859.66	
Mo	98	115	He	1.7128	ug/l	3.9	13525.54	
Ag	107	115	He	0.0552	ug/l	6.7	994.49	
Ag	109	115	He	0.0652	ug/l	9.0	1138.94	
Cd	111	115	He	0.5563	ug/l	1.5	1175.71	
Cd	114	115	He	0.6487	ug/l	1.3	3619.57	
[Pb]	206	175	He	2.6491	ug/l	0.4	36061.10	
[Pb]	207	175	He	2.5110	ug/l	1.1	28888.16	
Pb	208	175	He	2.5835	ug/l	1.1	138540.64	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	430268.27	1.2	465634.11	92.4	
Sc	45	No Gas	9453047.68	1.6	9033699.36	104.64	
Ge	72	H2	1724807.22	2.7	2007352.98	85.92	
Sc	45	He	205101.32	1.8	207415.29	98.88	
Ge	72	He	195439.60	1.1	208403.74	93.78	
In	115	He	2200722.54	2.3	2241849.28	98.17	
Lu	175	He	5589065.61	1.3	5577447.69	100.21	
Th	232	He	9254166.32	0.7	9174642.57	100.87	

Sample Report

Sample Name	K2407891-006
File Name	075SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:14:29
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	19505.3897	ug/l	4.6	461218781.67	
Se	77	72	H2	0.1038	ug/l	192.7	1349.39	
Se	78	72	H2	0.8545	ug/l	4.5	872.02	
Cr	52	72	He	89.5510	ug/l	1.4	514584.08	
Cr	53	72	He	87.8420	ug/l	0.5	63233.61	
Ni	60	72	He	77.6646	ug/l	0.9	241914.76	
Ni	62	72	He	77.9949	ug/l	1.0	38569.78	
Cu	63	72	He	47.9941	ug/l	1.1	443005.33	
Cu	65	72	He	48.0469	ug/l	2.0	221440.45	
Zn	66	72	He	110.7979	ug/l	1.6	138986.35	
As	75	72	He	17.8024	ug/l	0.7	14149.86	
Mo	95	115	He	1.3478	ug/l	5.5	6134.49	
Mo	98	115	He	1.3680	ug/l	3.5	10616.78	
Ag	107	115	He	0.0437	ug/l	6.1	778.91	
Ag	109	115	He	0.0449	ug/l	10.1	776.69	
Cd	111	115	He	0.6077	ug/l	3.7	1261.05	
Cd	114	115	He	0.6864	ug/l	0.8	3759.10	
[Pb]	206	175	He	2.4367	ug/l	0.9	33153.33	
[Pb]	207	175	He	2.3216	ug/l	2.4	26698.75	
Pb	208	175	He	2.3672	ug/l	0.8	126889.28	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	422497.55	0.4	465634.11	90.74	
Sc	45	No Gas	9272992.13	0.3	9033699.36	102.65	
Ge	72	H2	1691969.97	2.1	2007352.98	84.29	
Sc	45	He	202725.33	0.3	207415.29	97.74	
Ge	72	He	195531.41	0.7	208403.74	93.82	
In	115	He	2160432.91	0.8	2241849.28	96.37	
Lu	175	He	5584488.81	0.5	5577447.69	100.13	
Th	232	He	9227367.99	1.7	9174642.57	100.57	

Sample Report

Sample Name	K2407891-007
File Name	076SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:17:03
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	27682.1273	ug/l	5.6	670561271.13	
Se	77	72	H2	1.1884	ug/l	6.3	1669.75	
Se	78	72	H2	1.9110	ug/l	0.8	1902.78	
Cr	52	72	He	55.6650	ug/l	1.1	325157.03	
Cr	53	72	He	55.3060	ug/l	1.1	40560.67	
Ni	60	72	He	53.4723	ug/l	0.9	169211.38	
Ni	62	72	He	53.5480	ug/l	1.2	26903.30	
Cu	63	72	He	128.7790	ug/l	0.4	1206923.25	
Cu	65	72	He	129.9331	ug/l	0.3	608034.26	
Zn	66	72	He	167.5476	ug/l	0.4	213421.02	
As	75	72	He	52.6820	ug/l	0.6	42494.61	
Mo	95	115	He	2.9877	ug/l	2.8	13822.42	
Mo	98	115	He	2.9486	ug/l	1.4	23273.99	
Ag	107	115	He	0.2032	ug/l	3.7	3578.19	
Ag	109	115	He	0.2082	ug/l	3.2	3582.63	
Cd	111	115	He	0.3394	ug/l	1.8	718.69	
Cd	114	115	He	0.4327	ug/l	1.4	2422.68	
[Pb]	206	175	He	13.5968	ug/l	2.4	183013.73	
[Pb]	207	175	He	13.3125	ug/l	1.6	151513.55	
Pb	208	175	He	13.4246	ug/l	1.7	712033.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	438984.96	0.7	465634.11	94.28	
Sc	45	No Gas	9503905.46	1.0	9033699.36	105.21	
Ge	72	H2	1673796.22	1.4	2007352.98	83.38	
Sc	45	He	207839.34	0.8	207415.29	100.2	
Ge	72	He	198591.45	0.2	208403.74	95.29	
In	115	He	2200801.32	0.4	2241849.28	98.17	
Lu	175	He	5543332.42	1.5	5577447.69	99.39	
Th	232	He	9217822.57	1.8	9174642.57	100.47	

Sample Report

Sample Name	K2407891-008
File Name	077SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:19:39
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS
QC Analyte Table	NoUser

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	18612.8500	ug/l	3.8	443287253.50	
Se	77	72	H2	3.9640	ug/l	7.5	2521.53	
Se	78	72	H2	4.3919	ug/l	1.7	4336.23	
Cr	52	72	He	29.6543	ug/l	0.7	173957.76	
Cr	53	72	He	29.2300	ug/l	1.7	21646.89	
Ni	60	72	He	76.8077	ug/l	1.5	243573.44	
Ni	62	72	He	77.3117	ug/l	3.1	38928.37	
Cu	63	72	He	102.6287	ug/l	0.7	964191.87	
Cu	65	72	He	102.8130	ug/l	0.6	482303.35	
Zn	66	72	He	372.1747	ug/l	0.9	475064.67	
As	75	72	He	46.0310	ug/l	0.8	37220.34	
Mo	95	115	He	4.9347	ug/l	1.7	23073.69	
Mo	98	115	He	4.9769	ug/l	0.9	39711.52	
Ag	107	115	He	0.3103	ug/l	4.0	5508.74	
Ag	109	115	He	0.3142	ug/l	0.8	5456.49	
Cd	111	115	He	2.9468	ug/l	1.2	6286.52	
Cd	114	115	He	2.9284	ug/l	0.5	16444.63	
[Pb]	206	175	He	16.3389	ug/l	0.7	219407.98	
[Pb]	207	175	He	15.7358	ug/l	1.9	178657.43	
Pb	208	175	He	15.9723	ug/l	1.3	845107.94	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	445248.52	0.8	465634.11	95.62	
Sc	45	No Gas	9338828.24	0.8	9033699.36	103.38	
Ge	72	H2	1669953.16	2.8	2007352.98	83.19	
Sc	45	He	203657.41	0.1	207415.29	98.19	
Ge	72	He	199071.23	0.7	208403.74	95.52	
In	115	He	2226111.75	0.8	2241849.28	99.3	
Lu	175	He	5529813.25	0.6	5577447.69	99.15	
Th	232	He	9295737.15	0.4	9174642.57	101.32	

Sample Report

Sample Name	K2407891-009
File Name	078SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:22:13
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	19781.2303	ug/l	5.2	474825065.58	
Se	77	72	H2	6.1035	ug/l	4.5	3230.64	
Se	78	72	H2	6.3930	ug/l	1.2	6398.21	
Cr	52	72	He	30.8780	ug/l	1.0	181572.17	
Cr	53	72	He	30.1110	ug/l	3.1	22343.36	
Ni	60	72	He	66.4352	ug/l	0.6	211233.52	
Ni	62	72	He	65.8343	ug/l	1.7	33232.07	
Cu	63	72	He	95.4180	ug/l	0.8	898716.73	
Cu	65	72	He	95.3593	ug/l	1.1	448465.99	
Zn	66	72	He	366.9104	ug/l	0.9	469526.39	
As	75	72	He	37.5224	ug/l	0.6	30420.32	
Mo	95	115	He	4.2101	ug/l	2.7	19493.60	
Mo	98	115	He	4.3073	ug/l	1.9	34032.40	
Ag	107	115	He	0.2991	ug/l	0.4	5259.75	
Ag	109	115	He	0.2968	ug/l	7.0	5100.83	
Cd	111	115	He	2.3615	ug/l	2.0	4988.58	
Cd	114	115	He	2.3754	ug/l	2.4	13210.08	
[Pb]	206	175	He	14.8862	ug/l	1.1	200376.41	
[Pb]	207	175	He	14.4017	ug/l	1.0	163905.92	
Pb	208	175	He	14.5673	ug/l	1.0	772632.11	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	441965.83	1.6	465634.11	94.92	
Sc	45	No Gas	9417420.18	1.0	9033699.36	104.25	
Ge	72	H2	1695420.94	2.5	2007352.98	84.46	
Sc	45	He	202810.71	1.1	207415.29	97.78	
Ge	72	He	199572.94	0.6	208403.74	95.76	
In	115	He	2204385.64	1.8	2241849.28	98.33	
Lu	175	He	5542874.64	0.9	5577447.69	99.38	
Th	232	He	9367263.61	1.2	9174642.57	102.1	

Sample Report

Sample Name K2407891-010

File Name 079SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:24:48

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	20016.1125	ug/l	3.0	473785403.39	
Se	77	72	H2	4.0311	ug/l	4.3	2597.21	
Se	78	72	H2	4.2658	ug/l	1.8	4302.55	
Cr	52	72	He	33.2426	ug/l	1.2	194762.86	
Cr	53	72	He	32.2912	ug/l	1.6	23858.69	
Ni	60	72	He	82.3079	ug/l	1.0	260804.08	
Ni	62	72	He	82.6705	ug/l	0.5	41587.82	
Cu	63	72	He	112.5907	ug/l	0.1	1056889.65	
Cu	65	72	He	113.1627	ug/l	0.9	530395.64	
Zn	66	72	He	388.6363	ug/l	0.8	495667.73	
As	75	72	He	49.8585	ug/l	1.2	40280.25	
Mo	95	115	He	5.3668	ug/l	1.6	24663.73	
Mo	98	115	He	5.5638	ug/l	1.0	43631.20	
Ag	107	115	He	0.3153	ug/l	1.2	5503.17	
Ag	109	115	He	0.3039	ug/l	4.1	5189.74	
Cd	111	115	He	2.4250	ug/l	2.2	5084.95	
Cd	114	115	He	2.4224	ug/l	1.9	13372.88	
[Pb]	206	175	He	18.5758	ug/l	1.0	248721.71	
[Pb]	207	175	He	18.0263	ug/l	0.2	204080.16	
Pb	208	175	He	18.2400	ug/l	0.7	962328.15	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	435420.73	1.2	465634.11	93.51	
Sc	45	No Gas	9285209.36	1.1	9033699.36	102.78	
Ge	72	H2	1706125.45	1.2	2007352.98	84.99	
Sc	45	He	209136.66	0.6	207415.29	100.83	
Ge	72	He	198903.27	0.3	208403.74	95.44	
In	115	He	2188249.20	1.8	2241849.28	97.61	
Lu	175	He	5514028.81	0.3	5577447.69	98.86	
Th	232	He	9485393.82	1.6	9174642.57	103.39	

Sample Report

Sample Name K2407891-011

File Name 080SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:27:23

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	8963.8281	ug/l	3.2	205446000.73	
Se	77	72	H2	-0.5727	ug/l	N/A	1176.38	
Se	78	72	H2	0.0880	ug/l	1.5	113.00	
Cr	52	72	He	17.6906	ug/l	1.6	104880.70	
Cr	53	72	He	17.4892	ug/l	1.4	13190.65	
Ni	60	72	He	11.7839	ug/l	2.3	37775.69	
Ni	62	72	He	12.0629	ug/l	2.0	6142.25	
Cu	63	72	He	75.1276	ug/l	1.0	711479.12	
Cu	65	72	He	75.5605	ug/l	0.8	357308.57	
Zn	66	72	He	44.1799	ug/l	0.0	56941.77	
As	75	72	He	1.1314	ug/l	1.7	938.36	
Mo	95	115	He	0.7973	ug/l	4.9	3799.35	
Mo	98	115	He	0.8099	ug/l	6.1	6572.43	
Ag	107	115	He	0.0119	ug/l	15.0	244.45	
Ag	109	115	He	0.0128	ug/l	21.9	246.67	
Cd	111	115	He	0.0538	ug/l	4.3	119.67	
Cd	114	115	He	0.1587	ug/l	1.8	926.20	
[Pb]	206	175	He	0.9740	ug/l	1.2	13491.51	
[Pb]	207	175	He	0.9726	ug/l	1.2	11375.38	
Pb	208	175	He	0.9752	ug/l	0.5	53196.28	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	417104.24	2.6	465634.11	89.58	
Sc	45	No Gas	8993548.25	3.2	9033699.36	99.56	
Ge	72	H2	1750139.31	2.6	2007352.98	87.19	
Sc	45	He	199338.11	0.4	207415.29	96.11	
Ge	72	He	200651.88	0.6	208403.74	96.28	
In	115	He	2255145.32	1.4	2241849.28	100.59	
Lu	175	He	5653751.72	0.9	5577447.69	101.37	
Th	232	He	9397522.36	1.2	9174642.57	102.43	

Sample Report

Sample Name K2407891-012

File Name 081SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:29:58

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	17669.4791	ug/l	6.9	417517503.41	
Se	77	72	H2	-0.2792	ug/l	N/A	1223.71	
Se	78	72	H2	0.3019	ug/l	8.7	320.33	
Cr	52	72	He	52.2681	ug/l	0.2	304520.38	
Cr	53	72	He	52.3372	ug/l	1.2	38295.59	
Ni	60	72	He	32.5385	ug/l	1.3	102734.65	
Ni	62	72	He	31.3132	ug/l	2.6	15700.59	
Cu	63	72	He	114.8188	ug/l	0.8	1073160.30	
Cu	65	72	He	115.3348	ug/l	0.3	538269.92	
Zn	66	72	He	71.8796	ug/l	0.6	91371.37	
As	75	72	He	2.6148	ug/l	2.7	2119.14	
Mo	95	115	He	1.5439	ug/l	6.8	7233.84	
Mo	98	115	He	1.5610	ug/l	1.3	12473.60	
Ag	107	115	He	0.0957	ug/l	7.9	1720.10	
Ag	109	115	He	0.0997	ug/l	0.7	1746.77	
Cd	111	115	He	0.1083	ug/l	1.7	234.17	
Cd	114	115	He	0.2358	ug/l	2.0	1345.72	
[Pb]	206	175	He	2.2314	ug/l	1.9	30749.55	
[Pb]	207	175	He	2.1927	ug/l	0.6	25532.28	
Pb	208	175	He	2.1981	ug/l	0.7	119322.40	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	420265.15	1.3	465634.11	90.26	
Sc	45	No Gas	9274754.36	1.8	9033699.36	102.67	
Ge	72	H2	1684053.09	1.8	2007352.98	83.89	
Sc	45	He	203017.63	0.8	207415.29	97.88	
Ge	72	He	198050.26	0.4	208403.74	95.03	
In	115	He	2225061.35	0.5	2241849.28	99.25	
Lu	175	He	5653880.75	1.0	5577447.69	101.37	
Th	232	He	9425481.95	1.8	9174642.57	102.73	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 082_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:40:05

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	248.1846	ug/l	5.7	5707866.30	99.27	
Se	77	72	H2	23.3070	ug/l	5.0	9405.27	93.23	
Se	78	72	H2	24.3115	ug/l	4.2	26486.84	97.25	
Cr	52	72	He	25.0758	ug/l	1.0	147762.76	100.3	
Cr	53	72	He	24.9498	ug/l	2.7	18596.72	99.8	
Ni	60	72	He	25.0167	ug/l	0.9	79725.32	100.07	
Ni	62	72	He	25.3823	ug/l	1.8	12843.75	101.53	
Cu	63	72	He	24.8932	ug/l	0.9	234942.29	99.57	
Cu	65	72	He	24.8509	ug/l	0.9	117120.61	99.4	
Zn	66	72	He	24.9884	ug/l	1.3	32120.06	99.95	
As	75	72	He	24.5665	ug/l	1.6	19946.62	98.27	
Mo	95	115	He	12.3650	ug/l	0.6	57111.27	98.92	
Mo	98	115	He	12.3414	ug/l	0.1	97279.28	98.73	
Ag	107	115	He	12.3401	ug/l	0.8	215316.74	98.72	
Ag	109	115	He	12.2719	ug/l	1.3	209728.70	98.18	
Cd	111	115	He	24.4220	ug/l	0.7	51474.38	97.69	
Cd	114	115	He	24.1386	ug/l	1.2	133804.64	96.55	
[Pb]	206	175	He	23.6888	ug/l	1.1	313438.61	94.76	
[Pb]	207	175	He	23.4789	ug/l	1.4	262670.40	93.92	
Pb	208	175	He	23.6450	ug/l	1.1	1232756.21	94.58	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	427324.62	0.3	465634.11	91.77	
Sc	45	No Gas	9008517.98	1.4	9033699.36	99.72	
Ge	72	H2	1852465.97	3.9	2007352.98	92.28	
Sc	45	He	195149.21	1.9	207415.29	94.09	
Ge	72	He	199821.51	0.5	208403.74	95.88	
In	115	He	2200346.72	0.7	2241849.28	98.15	
Lu	175	He	5449730.06	0.6	5577447.69	97.71	
Th	232	He	9073958.20	0.7	9174642.57	98.9	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 083_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:42:40

Sample Type CCB

Comment —

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0859	ug/l	7.2	9450.36	
Se	77	72	H2	-0.6968	ug/l	N/A	1180.04	
Se	78	72	H2	0.0013	ug/l	694.6	24.67	
Cr	52	72	He	-0.0101	ug/l	N/A	634.46	
Cr	53	72	He	0.2599	ug/l	26.1	522.24	
Ni	60	72	He	-0.0005	ug/l	N/A	127.78	
Ni	62	72	He	0.0003	ug/l	1214.9	24.44	
Cu	63	72	He	-0.0006	ug/l	N/A	244.45	
Cu	65	72	He	-0.0051	ug/l	N/A	111.11	
Zn	66	72	He	0.0265	ug/l	57.2	143.34	
As	75	72	He	0.0099	ug/l	111.1	24.33	
Mo	95	115	He	0.0008	ug/l	258.7	30.00	
Mo	98	115	He	0.0059	ug/l	69.2	80.00	
Ag	107	115	He	0.0005	ug/l	166.5	38.89	
Ag	109	115	He	0.0008	ug/l	164.2	36.67	
Cd	111	115	He	0.0061	ug/l	22.5	15.67	
Cd	114	115	He	0.0069	ug/l	28.9	60.83	
[Pb]	206	175	He	0.0007	ug/l	200.6	133.34	
[Pb]	207	175	He	0.0022	ug/l	118.6	112.22	
Pb	208	175	He	0.0013	ug/l	65.2	522.23	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	415159.92	2.3	465634.11	89.16	
Sc	45	No Gas	8788284.93	0.7	9033699.36	97.28	
Ge	72	H2	1817573.75	0.9	2007352.98	90.55	
Sc	45	He	195421.24	0.4	207415.29	94.22	
Ge	72	He	197671.20	1.1	208403.74	94.85	
In	115	He	2151898.61	0.9	2241849.28	95.99	
Lu	175	He	5485605.61	1.7	5577447.69	98.35	
Th	232	He	9151026.11	2.3	9174642.57	99.74	

Sample Report

Sample Name K2407891-013

File Name 084SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:45:16

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	9737.7728	ug/l	4.0	219697217.94	
Se	77	72	H2	-0.4189	ug/l	N/A	1233.38	
Se	78	72	H2	0.1198	ug/l	5.9	146.33	
Cr	52	72	He	28.2795	ug/l	0.7	167667.72	
Cr	53	72	He	27.8245	ug/l	2.7	20840.41	
Ni	60	72	He	16.1517	ug/l	0.6	51864.35	
Ni	62	72	He	16.3547	ug/l	2.6	8340.97	
Cu	63	72	He	59.9277	ug/l	0.2	569041.54	
Cu	65	72	He	60.0133	ug/l	0.3	284542.32	
Zn	66	72	He	39.9717	ug/l	0.7	51657.52	
As	75	72	He	1.2337	ug/l	1.1	1024.36	
Mo	95	115	He	0.8415	ug/l	1.4	4013.85	
Mo	98	115	He	0.8591	ug/l	2.3	6981.50	
Ag	107	115	He	0.0138	ug/l	19.2	278.89	
Ag	109	115	He	0.0150	ug/l	17.9	287.78	
Cd	111	115	He	0.0523	ug/l	5.2	116.50	
Cd	114	115	He	0.1485	ug/l	1.7	869.19	
[Pb]	206	175	He	1.0154	ug/l	1.8	14018.68	
[Pb]	207	175	He	1.0016	ug/l	3.7	11671.16	
Pb	208	175	He	1.0090	ug/l	1.0	54853.03	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407225.47	2.6	465634.11	87.46	
Sc	45	No Gas	8852132.70	2.2	9033699.36	97.99	
Ge	72	H2	1758483.02	2.1	2007352.98	87.6	
Sc	45	He	203206.48	1.0	207415.29	97.97	
Ge	72	He	201160.85	0.8	208403.74	96.52	
In	115	He	2257945.86	1.1	2241849.28	100.72	
Lu	175	He	5636747.00	2.0	5577447.69	101.06	
Th	232	He	9352310.07	0.5	9174642.57	101.94	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 085_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:53:17

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	248.1914	ug/l	6.3	5571406.72	99.28	
Se	77	72	H2	23.2676	ug/l	1.6	9246.51	93.07	
Se	78	72	H2	24.5028	ug/l	1.6	26286.56	98.01	
Cr	52	72	He	25.1196	ug/l	1.3	146448.29	100.48	
Cr	53	72	He	25.0477	ug/l	1.6	18469.89	100.19	
Ni	60	72	He	24.9735	ug/l	0.6	78741.91	99.89	
Ni	62	72	He	24.2014	ug/l	1.4	12117.67	96.81	
Cu	63	72	He	25.1177	ug/l	0.6	234548.62	100.47	
Cu	65	72	He	24.8361	ug/l	0.9	115811.59	99.34	
Zn	66	72	He	24.7471	ug/l	1.3	31474.44	98.99	
As	75	72	He	24.8667	ug/l	1.4	19976.33	99.47	
Mo	95	115	He	12.6554	ug/l	0.8	56868.27	101.24	
Mo	98	115	He	12.6823	ug/l	0.7	97260.62	101.46	
Ag	107	115	He	12.5650	ug/l	0.9	213311.87	100.52	
Ag	109	115	He	12.4643	ug/l	0.9	207260.11	99.71	
Cd	111	115	He	24.7951	ug/l	1.4	50846.82	99.18	
Cd	114	115	He	24.6935	ug/l	0.8	133181.80	98.77	
[Pb]	206	175	He	23.3569	ug/l	0.7	308996.11	93.43	
[Pb]	207	175	He	23.4123	ug/l	1.1	261875.55	93.65	
Pb	208	175	He	23.5319	ug/l	0.7	1226649.81	94.13	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	424574.85	1.9	465634.11	91.18	
Sc	45	No Gas	8795318.54	2.8	9033699.36	97.36	
Ge	72	H2	1822074.65	1.8	2007352.98	90.77	
Sc	45	He	197301.58	0.2	207415.29	95.12	
Ge	72	He	197697.63	0.3	208403.74	94.86	
In	115	He	2140857.69	0.5	2241849.28	95.5	
Lu	175	He	5448838.26	1.2	5577447.69	97.69	
Th	232	He	8928933.20	0.8	9174642.57	97.32	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	086_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:55:52
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1009	ug/l	10.3	9559.30	
Se	77	72	H2	-0.7605	ug/l	N/A	1137.37	
Se	78	72	H2	0.0026	ug/l	117.5	25.67	
Cr	52	72	He	-0.0037	ug/l	N/A	660.02	
Cr	53	72	He	0.2260	ug/l	18.7	490.01	
Ni	60	72	He	0.0032	ug/l	218.5	137.78	
Ni	62	72	He	0.0032	ug/l	866.2	25.56	
Cu	63	72	He	-0.0022	ug/l	N/A	225.56	
Cu	65	72	He	-0.0050	ug/l	N/A	110.00	
Zn	66	72	He	0.0347	ug/l	64.1	151.11	
As	75	72	He	0.0188	ug/l	19.3	31.00	
Mo	95	115	He	0.0039	ug/l	25.2	44.45	
Mo	98	115	He	0.0048	ug/l	101.5	71.11	
Ag	107	115	He	0.0016	ug/l	125.4	57.78	
Ag	109	115	He	0.0008	ug/l	63.0	36.67	
Cd	111	115	He	0.0077	ug/l	30.1	19.17	
Cd	114	115	He	0.0076	ug/l	16.2	65.00	
[Pb]	206	175	He	0.0038	ug/l	43.8	171.11	
[Pb]	207	175	He	0.0044	ug/l	69.5	134.44	
Pb	208	175	He	0.0042	ug/l	46.9	662.23	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407739.26	0.4	465634.11	87.57	
Sc	45	No Gas	8586408.83	0.9	9033699.36	95.05	
Ge	72	H2	1783833.85	2.4	2007352.98	88.86	
Sc	45	He	194250.79	0.2	207415.29	93.65	
Ge	72	He	194601.93	0.7	208403.74	93.38	
In	115	He	2160272.40	1.6	2241849.28	96.36	
Lu	175	He	5388201.04	1.8	5577447.69	96.61	
Th	232	He	9164491.53	1.3	9174642.57	99.89	

Service Request # K2407895
Instrument ID # K-ICP-MS-05
Calibration 082824AICPMS05
ALS LIMS Run # 852188
Cal Std: MS34-26-J
ICV Std: MS34-25-F
LLICV Std: MS34-25-G
I.S. Solution: MS33-40-A
EPA Tune Solution: MS33-39-E
Pipette IDs: 38480473, 42390072, 44183886
ICSA Std: MS34-25-H
ICSAB Std: MS34-25-I

ICP-MS Data Review Form

	Yes	No	NA
1. Appropriate standardization completed	X		
2. ICV in control (+/- 10%)	X		
3. CCV's in control (+/- 10%)	X		
4. ICB/CCB's below MRL	X		
5. LLICV standard analyzed and in control	X		
6. ICS standards within 20% of true value			X
7. All analytes within instrument linear range	X		
8. Adequate rinse out time allowed	X		
9. Internal standards in control	X		
10. Interferences checked	X		
11. Was the run terminated? If so, why.		X	

See Benchsheet exception report for sample batch QC information.
Comments: Pb

Prep Batch: 443310

Primary Review by JC Date 8/28/24

Secondary Review by QC Date 8/28/24

Data Review Form

Instrument ID#: **K-ICP-MS-05**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-MS-05 (Agilent)\082824A.csv**
RUNNO: **852188**

K2407895

No exceptions to report.

Primary Approver: 3L 8/28/24
Secondary Approver: [illegible] 8/28/24

Sample

		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
1			001CALB.d	2024-08-28 07:31:45	CalBlk		Prime		2
2			002CALB.d	2024-08-28 07:33:08	CalBlk		Rinse		3
3			003CALB.d	2024-08-28 07:34:32	CalBlk	1	Blank		3
4			004CALS.d	2024-08-28 07:35:55	CalStd	2	25ppb		2
5			005_ICV.d	2024-08-28 07:37:18	ICV		ICV		1103
6			006_CCV.d	2024-08-28 07:38:41	CCV		CCV		2
7			007_ICB.d	2024-08-28 07:40:05	ICB		ICB		3
8			008_CCB.d	2024-08-28 07:41:29	CCB		CCB		3
9			009LICV.d	2024-08-28 07:42:52	LLICV		LLICVS		1104
10			010_PB.d	2024-08-28 07:56:15	PB		KQ2412766-05	5X	2101
11			011_LCS.d	2024-08-28 07:57:37	LCS		KQ2412766-06	20X	2102
12			012_ARF.d	2024-08-28 07:59:00	AllRef		K2407895-001	5X	2103
13			013_Dup.d	2024-08-28 08:00:23	Dup		KQ2412766-01	5X	2104
14			014_Spk.d	2024-08-28 08:01:46	Spike		KQ2412766-02	5X	2105
15			015_ARF.d	2024-08-28 08:03:09	AllRef		K2407895-011	5X	2106
16			016_Dup.d	2024-08-28 08:04:32	Dup		KQ2412766-03	5X	2107
17			017_Spk.d	2024-08-28 08:05:55	Spike		KQ2412766-04	5X	2108
18			018SMPL.d	2024-08-28 08:07:19	Sample		K2407895-002	5X	2109
19			019SMPL.d	2024-08-28 08:08:42	Sample		K2407895-003	5X	2110
20			020_CCV.d	2024-08-28 08:10:05	CCV		CCV		2
21			021_CCB.d	2024-08-28 08:11:29	CCB		CCB		3
22			022SMPL.d	2024-08-28 08:12:53	Sample		K2407895-004	5X	2111
23			023SMPL.d	2024-08-28 08:14:16	Sample		K2407895-005	5X	2112
24			024SMPL.d	2024-08-28 08:15:39	Sample		K2407895-006	5X	2201
25			025SMPL.d	2024-08-28 08:17:02	Sample		K2407895-007	5X	2202
26			026SMPL.d	2024-08-28 08:18:25	Sample		K2407895-008	5X	2203
27			027SMPL.d	2024-08-28 08:19:49	Sample		K2407895-009	5X	2204
28			028SMPL.d	2024-08-28 08:21:12	Sample		K2407895-010	5X	2205
29			029SMPL.d	2024-08-28 08:22:35	Sample		K2407895-012	5X	2206
30			030SMPL.d	2024-08-28 08:23:58	Sample		K2407895-013	5X	2207
31			031_CCV.d	2024-08-28 08:25:21	CCV		CCV		2
32			032_CCB.d	2024-08-28 08:26:45	CCB		CCB		3

Analyte

	Name	Mass	ISTD	Tune Mode	Conc.	Units	Replicate
1	[Pb]	206	175	He	-0.0185	ug/l	3
2	[Pb]	207	175	He	-0.0151	ug/l	3
3	Pb	208	175	He	-0.0153	ug/l	3
4	Lu	175		He			3
5	Th	232		He			3

US EPA Tune Check Report

Operator Name	ALKLS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\082824.b
Acq. Date-Time	2024-08-28 06:55:42
Report Comment	ALS Tune
Instrument Name	G3281A JP13482848

[No Gas]

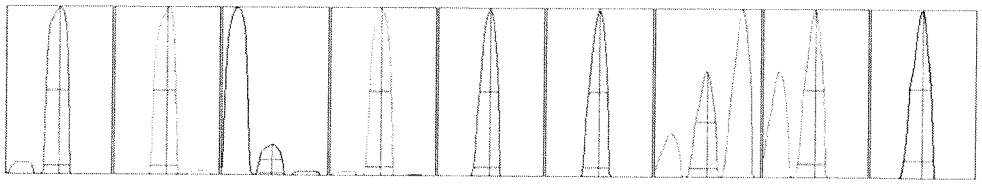
Sensitivity

Mass	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	76920.00	0.988	5.000	
9	22466.63	1.481	5.000	
24	162131.32	1.243	5.000	
59	381094.97	1.136	5.000	
115	608393.53	0.917	5.000	
140	659065.36	0.518	5.000	
208	352356.07	0.314	5.000	
209	551942.54	1.065	5.000	
238	700418.03	0.570	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	7561	7744	7745	7706	7705
9	2195	2267	2230	2271	2270
24	15864	16235	16285	16373	16308
59	37345	38224	38346	38388	38244
115	59922	60889	60878	61419	61089
140	65569	66343	66113	65564	65944
208	35381	35310	35148	35224	35115
209	55364	55790	55420	55177	54221
238	70454	70467	69656	69681	69950

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
7	12636.83	7.05	6.90 - 7.10		0.740		0.900
9	3781.68	9.05	8.90 - 9.10		0.779		0.900
24	26582.48	23.95	23.90 - 24.10		0.784		0.900

US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
59	65009.29	58.95	58.90 - 59.10		0.780		0.900
115	117764.46	115.00	114.90 - 115.10		0.746		0.900
140	129408.98	140.00	139.90 - 140.10		0.735		0.900
208	65338.37	208.00	207.90 - 208.10		0.793		0.900
209	104148.18	209.00	208.90 - 209.10		0.786		0.900
238	126196.00	238.00	237.90 - 238.10		0.841		0.900

Integration Time [sec]	0.1
Acquisition Time [sec]	268.4
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.57 L/min	Dilution Gas	0.50 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.76 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.8 V	Deflect	12.2 V
Extract 2	-175.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-85 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	126	Axis Gain	1.0008	QP Bias	-3.0 V
Mass Offset	126	Axis Offset	0.01		

Hardware Settings

Torch

Torch H	-0.1 mm	Torch V	1.0 mm

EM

Discriminator	4.5 mV	Analog HV	1845 V	Pulse HV	1613 V

Calibration Blank Report

Sample Name	Blank
File Name	003CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:34:32
Sample Type	CalBlk
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
[Pb]	206	175	He	1086.71	4.5
[Pb]	207	175	He	993.38	5.5
Pb	208	175	He	4502.53	3.5

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Lu	175	He	7055146.25	2.8
Th	232	He	11297408.58	1.6

JC
8/28/24

Calibration Standard Report

Sample Name	25ppb
File Name	004CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:35:55
Sample Type	CalStd
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
[Pb]	206	175	He	336983.43	3.9
[Pb]	207	175	He	292639.81	3.7
Pb	208	175	He	1369926.51	3.9

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6968056.94	1.4	7055146.25	98.77	
Th	232	He	11239408.58	0.9	11297408.58	99.49	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	005_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:37:18
Sample Type	ICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
[Pb]	206	175	He	25.6969	ug/l	5.5	357084.86	102.79	
[Pb]	207	175	He	25.0609	ug/l	3.4	302512.29	100.24	
Pb	208	175	He	25.2440	ug/l	4.7	1426353.83	100.98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7188789.99	2.8	7055146.25	101.89	
Th	232	He	11509096.91	2.2	11297408.58	101.87	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 006_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 07:38:41

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
[Pb]	206	175	He	25.0469	ug/l	4.5	339530.07	100.19	
[Pb]	207	175	He	25.3823	ug/l	4.8	298772.98	101.53	
Pb	208	175	He	25.2083	ug/l	4.7	1389222.71	100.83	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7011642.78	2.5	7055146.25	99.38	
Th	232	He	11403573.58	2.3	11297408.58	100.94	

Initial Calibration Blank (ICB) Report

Sample Name	ICB
File Name	007_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:40:05
Sample Type	ICB
Comment	—
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	0.0017	ug/l	207.0	1112.27	
[Pb]	207	175	He	0.0025	ug/l	45.5	1026.71	
Pb	208	175	He	0.0028	ug/l	54.8	4671.43	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7073559.30	2.2	7055146.25	100.26	
Th	232	He	11112651.50	2.4	11297408.58	98.36	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	008_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:41:29
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	0.0040	ug/l	137.7	1120.05	
[Pb]	207	175	He	-0.0031	ug/l	N/A	941.15	
Pb	208	175	He	-0.0020	ug/l	N/A	4315.83	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6928390.98	1.6	7055146.25	98.2	
Th	232	He	11239952.33	2.5	11297408.58	99.49	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name	LLICVS
File Name	009LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:42:52
Sample Type	LLICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS**
	NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
[Pb]	206	175	He	0.0950	ug/l	7.9	2375.76	95	
[Pb]	207	175	He	0.1033	ug/l	9.6	2211.29	103.3	
Pb	208	175	He	0.0958	ug/l	1.2	9786.85	95.8	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7043187.77	0.6	7055146.25	99.83	
Th	232	He	11212294.41	0.9	11297408.58	99.25	

Prep Blank (PB) Report

Sample Name	KQ2412766-05
File Name	010_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:56:15
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	0.0367	ug/l	24.2	1604.54	
[Pb]	207	175	He	0.0344	ug/l	43.4	1417.86	
Pb	208	175	He	0.0323	ug/l	37.6	6366.12	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7134971.11	0.9	7055146.25	101.13	
Th	232	He	11314637.33	0.6	11297408.58	100.15	

Laboratory Control Sample (LCS) Report

Sample Name KQ2412766-06

File Name 011_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 07:57:37

Sample Type LCS

Comment 20X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
[Pb]	206	175	He	49.1791	ug/l	4.5	671818.72	50	98.36	
[Pb]	207	175	He	50.1849	ug/l	5.9	595184.52	50	100.37	
Pb	208	175	He	49.6827	ug/l	5.6	2758758.99	50	99.37	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7074099.16	1.0	7055146.25	100.27	
Th	232	He	11377851.91	1.1	11297408.58	100.71	

Reference Sample Report

Sample Name	K2407895-001
File Name	012_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 07:59:00
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	2.4559	ug/l	7.1	35481.92	
[Pb]	207	175	He	2.3915	ug/l	5.9	30078.22	
Pb	208	175	He	2.4066	ug/l	6.0	141535.09	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7263709.44	2.7	7055146.25	102.96	
Th	232	He	11494155.66	1.7	11297408.58	101.74	

Duplicate Sample Report

Sample Name	KQ2412766-01
File Name	013_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 08:00:23
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD Ref FileName	Pass
QC Ref File Name	012_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
[Pb]	206	He	38100.30	2.6398	ug/l	3.6	7.22	
[Pb]	207	He	32793.75	2.6121	ug/l	2.5	8.82	
Pb	208	He	152858.40	2.6028	ug/l	3.4	7.83	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Lu	175	He	7263521.66	1.5	7055146.25	102.95	59.55	125.44	
Th	232	He	11473515.66	1.2	11297408.58	101.56	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2412766-02

File Name 014_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:01:46

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 012_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
[Pb]	206	He	211.1806	ug/l	5.1	2880633.64	200	104.36	
[Pb]	207	He	211.9487	ug/l	5.0	2510203.37	200	104.78	
Pb	208	He	210.0568	ug/l	4.4	11649219.13	200	103.83	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7077643.19	2.9	7055146.25	100.32	
Th	232	He	11349734.83	0.8	11297408.58	100.46	

Reference Sample Report

Sample Name	K2407895-011
File Name	015_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 08:03:09
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	17.2041	ug/l	4.1	236660.76	
[Pb]	207	175	He	16.7333	ug/l	3.6	199932.04	
Pb	208	175	He	16.7907	ug/l	4.2	939099.36	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7101747.77	0.8	7055146.25	100.66	
Th	232	He	11390725.24	3.4	11297408.58	100.83	

Duplicate Sample Report

Sample Name	KQ2412766-03
File Name	016_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 08:04:32
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD Ref FileName	Pass
QC Ref File Name	015_
Default Text	ALKLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
[Pb]	206	He	232418.33	17.1573	ug/l	4.7	0.27	
[Pb]	207	He	198077.59	16.8354	ug/l	4.4	0.61	
Pb	208	He	926969.76	16.8307	ug/l	4.3	0.24	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Lu	175	He	6995189.44	1.8	7055146.25	99.15	59.55	125.44	
Th	232	He	11209100.66	0.5	11297408.58	99.22	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2412766-04

File Name 017_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:05:55

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 015_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
[Pb]	206	He	225.8360	ug/l	2.4	3047602.17	200	104.32	
[Pb]	207	He	227.3164	ug/l	2.6	2663567.88	200	105.29	
Pb	208	He	224.2335	ug/l	2.2	12301072.43	200	103.72	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6995658.89	0.7	7055146.25	99.16	
Th	232	He	11190892.75	0.6	11297408.58	99.06	

Sample Report

Sample Name K2407895-002

File Name 018SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:07:19

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	1.8301	ug/l	3.1	25507.81	
[Pb]	207	175	He	1.7973	ug/l	3.0	21816.62	
Pb	208	175	He	1.8074	ug/l	3.8	102544.17	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6925562.78	0.9	7055146.25	98.16	
Th	232	He	11238210.25	1.2	11297408.58	99.48	

Sample Report

Sample Name	K2407895-003
File Name	019SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 08:08:42
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	2.2265	ug/l	2.8	30581.43	
[Pb]	207	175	He	2.1171	ug/l	2.8	25340.86	
Pb	208	175	He	2.1490	ug/l	2.9	120216.90	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6874841.95	0.7	7055146.25	97.44	
Th	232	He	10973650.67	0.4	11297408.58	97.13	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 020_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:10:05

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
[Pb]	206	175	He	25.8531	ug/l	2.6	293984.66	103.41	
[Pb]	207	175	He	26.1924	ug/l	2.3	258694.48	104.77	
Pb	208	175	He	26.0680	ug/l	2.2	1205132.51	104.27	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	5870342.13	12.4	7055146.25	83.21	
Th	232	He	9597076.52	10.5	11297408.58	84.95	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 021_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:11:29

Sample Type CCB

Comment —

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	-0.0104	ug/l	N/A	927.81	
[Pb]	207	175	He	-0.0093	ug/l	N/A	868.92	
Pb	208	175	He	-0.0081	ug/l	N/A	3984.68	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6924283.62	1.3	7055146.25	98.15	
Th	232	He	11202979.00	0.7	11297408.58	99.16	

Sample Report

Sample Name K2407895-004

File Name 022SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:12:53

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	10.3001	ug/l	4.5	143557.98	
[Pb]	207	175	He	10.0935	ug/l	5.5	122198.96	
Pb	208	175	He	10.0359	ug/l	5.2	568750.87	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7176690.83	2.3	7055146.25	101.72	
Th	232	He	11292121.50	1.6	11297408.58	99.95	

Sample Report

Sample Name K2407895-005

File Name 023SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:14:16

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	10.2140	ug/l	3.8	142351.28	
[Pb]	207	175	He	9.9317	ug/l	3.9	120250.10	
Pb	208	175	He	9.9388	ug/l	4.1	563267.97	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7172371.94	1.0	7055146.25	101.66	
Th	232	He	11485371.50	1.5	11297408.58	101.66	

Sample Report

Sample Name K2407895-006

File Name 024SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:15:39

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	13.3259	ug/l	3.6	182915.81	
[Pb]	207	175	He	13.0290	ug/l	4.2	155340.86	
Pb	208	175	He	13.0582	ug/l	3.9	728773.09	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7074298.33	1.3	7055146.25	100.27	
Th	232	He	11412151.50	0.5	11297408.58	101.02	

Sample Report

Sample Name	K2407895-007
File Name	025SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 08:17:02
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	9.7989	ug/l	4.9	133415.96	
[Pb]	207	175	He	9.3668	ug/l	3.2	110826.06	
Pb	208	175	He	9.4623	ug/l	3.5	523974.11	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7004601.39	0.6	7055146.25	99.28	
Th	232	He	11397814.83	0.9	11297408.58	100.89	

Sample Report

Sample Name K2407895-008

File Name 026SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:18:25

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	13.9355	ug/l	3.6	191458.63	
[Pb]	207	175	He	13.5235	ug/l	3.3	161392.72	
Pb	208	175	He	13.5763	ug/l	3.1	758405.20	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7082255.28	1.0	7055146.25	100.38	
Th	232	He	11396943.58	0.2	11297408.58	100.88	

Sample Report

Sample Name K2407895-009

File Name 027SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:19:49

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	8.2431	ug/l	3.4	111759.57	
[Pb]	207	175	He	7.9743	ug/l	4.3	93940.69	
Pb	208	175	He	8.0176	ug/l	3.4	442065.26	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6963057.64	0.5	7055146.25	98.69	
Th	232	He	11377767.33	0.9	11297408.58	100.71	

Sample Report

Sample Name K2407895-010

File Name 028SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:21:12

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	12.3902	ug/l	2.9	171990.16	
[Pb]	207	175	He	11.8266	ug/l	3.5	142627.67	
Pb	208	175	He	11.9031	ug/l	3.2	671920.04	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7152339.72	0.6	7055146.25	101.38	
Th	232	He	11502285.66	3.2	11297408.58	101.81	

Sample Report

Sample Name K2407895-012

File Name 029SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:22:35

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	11.9345	ug/l	3.1	164562.95	
[Pb]	207	175	He	11.4701	ug/l	4.2	137405.78	
Pb	208	175	He	11.5714	ug/l	3.4	648802.05	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7102123.33	0.6	7055146.25	100.67	
Th	232	He	11322996.91	1.4	11297408.58	100.23	

Sample Report

Sample Name K2407895-013

File Name 030SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:23:58

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	7.4984	ug/l	4.0	102574.27	
[Pb]	207	175	He	7.2959	ug/l	4.2	86726.58	
Pb	208	175	He	7.3216	ug/l	4.2	407318.28	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	7020315.28	0.9	7055146.25	99.51	
Th	232	He	11541896.91	1.3	11297408.58	102.16	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 031_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082824A.b

Acq Time 2024-08-28 08:25:21

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
[Pb]	206	175	He	25.3732	ug/l	5.4	339793.12	101.49	
[Pb]	207	175	He	25.5139	ug/l	3.9	296779.21	102.06	
Pb	208	175	He	25.3565	ug/l	4.7	1380582.71	101.43	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6929576.39	3.3	7055146.25	98.22	
Th	232	He	11385328.58	3.5	11297408.58	100.78	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	032_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082824A.b
Acq Time	2024-08-28 08:26:45
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
[Pb]	206	175	He	-0.0185	ug/l	N/A	818.92	
[Pb]	207	175	He	-0.0151	ug/l	N/A	800.03	
Pb	208	175	He	-0.0153	ug/l	N/A	3585.76	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Lu	175	He	6916280.00	1.5	7055146.25	98.03	
Th	232	He	11367689.00	0.7	11297408.58	100.62	

CVAA Mercury Soil Data Review Form

K-CVAA-04

Element:	Hg		
Analysis Lot #:	080524A HG4		
Starlims #:	849608		
Cal. STD/CCV Source:	HG4-9-U		
Pipette IDs:	HG-43188965/HG-39591307		
16mL Tube Lot #:	P7664876		
KMnO4:	HG4-11-G	Expiration Date:	7/29/2025
NH2OH-HCl/NaCl	HG4-11-H	Expiration Date:	7/29/2025
SnCl2/HCl:	HG4-11-K	Expiration Date:	7/29/2024

Service Request Numbers:

K2407840, K2407534, K2407891, K2407895

K2406875, K2406876 7471 LOD/LOQ

	Yes	No	NA
1) Appropriate standardization completed	X		
2) ICV within 10% of true value	X		
3) CCVs in control (+/- 10%)	X		
4) CCBs and or ICBs below MRL	X		
5) CCV/CCB check run every 10 samples	X		
6) All reported samples within calibration range	X		
7) Percent relative errors in control	X		
8) Calculations correct	X		

Comments:

Data reviewed against service request(s) to ensure no samples were omitted: JJ (Initials)

Primary Reviewed By: [signature] Date: 8/5/24

Secondary Reviewed By: [signature] Date: 8.5.24

Data Review Form

Instrument ID#: **K-CVAA-04**
DataFile Name: **R:\ICP\WIP\DATA\K-CVAA-04 (M-7600)\080524A HG4.csv**
RUNNO: **849608**

K2406875

No exceptions to report.

K2406876

No exceptions to report.

K2407534

No exceptions to report.

K2407840

No exceptions to report.

K2407891

No exceptions to report.

K2407895

No exceptions to report.

Primary Approver: 8/5/24
Secondary Approver: 8.5.24

CVAA Hg ANALYTICAL WORKSHEET

Method: 7471	Cal. Inter. Std* (100ppb): HG4-11-U 2nd Source Inter Std** (1ppm): HG4-11-N

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
1	Cal. Blk.	0.000	~	~		
2	Std 0.2*	0.200	~	(0.1-50mL)		
3	Std 0.5*	0.500	~	(0.25-50mL)		
4	Std 1.0*	1.000	~	(0.5-50mL)		
5	Std 5.0*	5.000	~	(2.5-50mL)		
6	Std 10.0*	10.000	~	(5.0-50mL)		
7	ICV1**	4.837	~	97%		
8	ICB1	-0.006	~			
9	LLICV1*	0.196	~	98%		
10	CCV1*	4.987	~	100%		
11	CCB1	-0.005	~			
12	KQ2410304-01	-0.005	~			
13	KQ2410304-02	4.821	~	96%		
14	KQ2410304-03	4.817	~	96%		
15	K2406875-010	0.039	~	78%		LOD
16	K2406876-010	0.196	~	98%		LOQ
17	KQ2411786-03	-0.002	~			
18	KQ2411786-04	4.817	~	96%		
19	K2407840-001	0.253	~			
20	KQ2411786-01	0.307	~			
21	KQ2411786-02	4.756	~	90%		
22	CCV2	4.873	~	97%		
23	CCB2	-0.005	~			
24	K2407840-001A	5.028	~	96%		
25	K2407840-002	0.285	~			
26	K2407840-003	0.308	~			
27	K2407840-004	0.282	~			
28	KQ2411974-01	-0.004	~			
29	KQ2411974-02	4.701	~	94%		
30	KQ2411974-03	4.679	~	94%		
31	K2407534-001	0.020	~			
32	KQ2411911-03	-0.001	~			

Comments:

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
33	KQ2411911-04	4.708	~	94%		
34	CCV3	4.859	~	97%		
35	CCB3	-0.003	~			
36	K2407891-001	0.307	~			
37	KQ2411911-01	0.490	~			
38	KQ2411911-02	4.808	~	90%		
39	K2407891-001A	5.178	~	97%		
40	K2407891-002	0.207	~			
41	K2407891-003	0.574	~			
42	K2407891-004	0.130	~			
43	K2407891-005	0.063	~			
44	K2407891-006	0.105	~			
45	K2407891-007	0.191	~			
46	CCV4	4.902	~	98%		
47	CCB4	-0.005	~			
48	K2407891-008	1.004	~			
49	K2407891-009	0.517	~			
50	K2407891-010	0.895	~			
51	K2407891-011	0.012	~			
52	K2407891-012	0.286	~			
53	K2407891-013	0.016	~			
54	K2407891-014	0.098	~			
55	KQ2411922-03	-0.001	~			
56	KQ2411922-04	4.737	~	95%		
57	K2407895-001	0.086	~			
58	CCV5	4.924	~	98%		
59	CCB5	-0.003	~			
60	KQ2411922-01	0.093	~			
61	KQ2411922-02	4.881	~	96%		
62	K2407895-001A	5.085	~	100%		
63	K2407895-002	0.060	~			
64	K2407895-003	0.089	~			

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	80-120%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	N/A
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCS	0.5mg/kg	0.02 mg/kg	80-120%	80-120%	20%	+/- 20%
7471B Tissue Dorm	0.316mg/kg	0.02 mg/kg	76-126%	80-120%	20%	MSA

[080524A HG4 7471] HG2.XLS

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
65	K2407895-004	0.121	~			
66	K2407895-005	0.162	~			
67	K2407895-006	0.157	~			
68	K2407895-007	0.191	~			
69	K2407895-008	0.214	~			
70	CCV6	4.861	~	97%		
71	CCB6	-0.003	~			
72	K2407895-009	0.107	~			
73	K2407895-010	0.452	~			
74	K2407895-011	0.448	~			
75	K2407895-012	0.466	~			
76	K2407895-013	2.350	~			
77	CCV7	4.896	~	98%		
78	CCB7	-0.004	~			
79						
80						
81						
82						
83						
84						
85						
86						
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	80-120%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	N/A
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCS	0.5mg/kg	0.02 mg/kg	80-120%	80-120%	20%	+/- 20%
7471B Tissue Dorm	0.316mg/kg	0.02 mg/kg	76-126%	80-120%	20%	MSA

Report Generated By Teledyne Leeman QuickTrace

Analyst: alkls.nouser

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\080524A HG4.wszf

Creation Date: 8/5/2024 8:47:55 AM

Comment:

Results

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
Calibration Blank				STD		0.000		165	12.65				
		1.0000					N/A						
Replicates	196.0	149.1	157.2	158.9									
Standard #1 (0.2 ug/L)				STD		0.200		1901	1.36	-3.04%			
		1.0000					N/A						
Replicates	1924.1	1917.2	1893.9	1867.2									
Standard #2 (0.5 ug/L)				STD		0.500		4537	0.58	-2.30%			
		1.0000					N/A						
Replicates	4522.0	4573.0	4538.2	4512.9									
Standard #3 (1 ug/L)				STD		1.000		8956	1.80	-1.76%			
		1.0000					N/A						
Replicates	9077.1	9082.4	8925.7	8740.5									
Standard #4 (5 ug/L)				STD		5.000		44925	1.77	0.04%			
		1.0000					N/A						
Replicates	45500.2	45504.1	44881.5	43814.8									
Standard #5 (10 ug/L)				STD		10.000		89666	1.86	0.02%			
		1.0000					N/A						
Replicates	90745.0	90911.9	89714.8	87292.6									
ICV1				ICV		4.837		43451	1.85				
		1.0000					96.74						
Replicates	44001.8	44038.7	43439.2	42324.4									
ICB1				ICB		-0.006		114	40.53				
		1.0000					N/A						
Replicates	93.9	142.9	113.0	108.0									
LLICV1				CRDL		0.196		1918	2.24				
		1.0000					97.92						
Replicates	1939.8	1934.8	1937.5	1858.8									

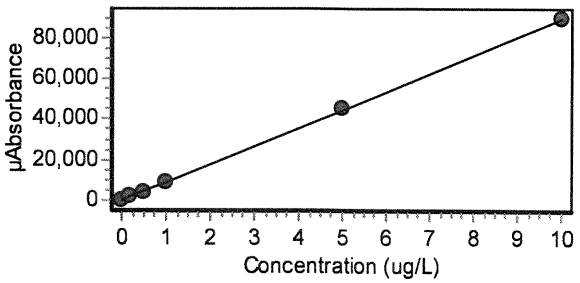
Calibration

Equation: Abs = 8948.694x + 165.304

R2: 0.99999 RSE: 2.43%

SEE: 113.8478

Flags:



Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
CCV1				CCV		4.987		44790	1.62				
			1.0000				99.74						
Replicates	45252.3	45348.6	44794.5	43766.5									
CCB1				CRDL		-0.005		122	28.93		Y		
			1.0000				-2.40						
Replicates	119.5	123.1	138.3	108.1									
KQ2410304-01				UNK		-0.005		123	52.76				
			1.0000				N/A						
Replicates	128.0	140.6	132.1	89.7									
KQ2410304-02				UNK		4.821		43308	1.60				
			1.0000				N/A						
Replicates	43773.1	43818.8	43304.3	42335.7									
KQ2410304-03				UNK		4.817		43274	0.44				
			1.0000				N/A						
Replicates	43075.5	43339.7	43503.3	43176.7									
K2406875-010				UNK		0.039		517	5.88				
			1.0000				N/A						
Replicates	542.0	514.5	520.2	491.7									
K2406876-010				UNK		0.196		1921	2.03				
			1.0000				N/A						
Replicates	1911.3	1974.3	1903.9	1896.4									
KQ2411786-03				UNK		-0.002		145	104.63				
			1.0000				N/A						
Replicates	123.6	133.8	154.1	170.1									
KQ2411786-04				UNK		4.816		43267	1.72				
			1.0000				N/A						
Replicates	43762.1	43795.6	43300.1	42208.6									
K2407840-001				UNK		0.253		2431	2.03				
			1.0000				N/A						
Replicates	2451.3	2448.7	2460.5	2362.2									
KQ2411786-01				UNK		0.307		2913	1.70				
			1.0000				N/A						
Replicates	2941.1	2955.2	2903.9	2850.4									
KQ2411786-02				UNK		4.756		42722	1.90				
			1.0000				N/A						
Replicates	43192.0	43348.0	42785.6	41562.0									
CCV2				CCV		4.873		43773	1.55				
			1.0000				97.46						
Replicates	44182.9	44305.0	43791.0	42814.5									
CCB2				CRDL		-0.005		121	25.03		Y		
			1.0000				-2.46						
Replicates	126.7	118.9	132.5	107.0									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407840-001A				UNK		5.028		45159	2.08				
		1.0000					N/A						
Replicates	45713.1	45899.3	45192.5	43832.6									
K2407840-002				UNK		0.285		2714	2.18				
		1.0000					N/A						
Replicates	2749.6	2753.7	2717.4	2634.2									
K2407840-003				UNK		0.308		2925	1.98				
		1.0000					N/A						
Replicates	2937.2	2972.6	2944.5	2846.5									
K2407840-004				UNK		0.282		2689	1.72				
		1.0000					N/A						
Replicates	2723.1	2715.1	2691.9	2627.2									
KQ2411974-01				UNK		-0.004		130	57.58				
		1.0000					N/A						
Replicates	149.2	102.1	129.1	139.6									
KQ2411974-02				UNK		4.701		42233	1.41				
		1.0000					N/A						
Replicates	42563.0	42713.8	42265.7	41388.2									
KQ2411974-03				UNK		4.679		42037	1.66				
		1.0000					N/A						
Replicates	42459.8	42570.5	42077.3	41041.8									
K2407534-001				UNK		0.020		349	3.75				
		1.0000					N/A						
Replicates	350.6	338.9	355.0	349.9									
KQ2411911-03				UNK		-0.001		153	158.63				
		1.0000					N/A						
Replicates	128.4	157.4	176.1	149.6									
KQ2411911-04				UNK		4.708		42292	1.61				
		1.0000					N/A						
Replicates	42689.8	42808.5	42357.4	41312.9									
CCV3				CCV		4.859		43648	1.49				
		1.0000					97.18						
Replicates	44055.0	44133.5	43681.9	42721.0									
CCB3				CCB		-0.003		135	33.44				
		1.0000					N/A						
Replicates	136.6	139.3	142.8	119.6									
K2407891-001				UNK		0.307		2916	2.07				
		1.0000					N/A						
Replicates	2955.7	2960.6	2908.6	2837.8									
KQ2411911-01				UNK		0.490		4552	2.00				
		1.0000					N/A						
Replicates	4633.4	4595.2	4550.4	4430.7									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
KQ2411911-02				UNK		4.808		43193	2.14			
			1.0000				N/A					
Replicates	43771.0	43879.6	43245.4	41874.2								
K2407891-001A				UNK		5.178		46499	1.92			
			1.0000				N/A					
Replicates	47034.6	47161.8	46578.1	45219.5								
K2407891-002				UNK		0.207		2015	0.64			
			1.0000				N/A					
Replicates	2011.4	2032.3	2012.6	2005.0								
K2407891-003				UNK		0.574		5306	1.42			
			1.0000				N/A					
Replicates	5362.0	5350.6	5309.8	5201.3								
K2407891-004				UNK		0.130		1324	3.94			
			1.0000				N/A					
Replicates	1352.2	1364.5	1318.4	1262.4								
K2407891-005				UNK		0.063		734	6.12			
			1.0000				N/A					
Replicates	715.3	750.8	772.6	695.3								
K2407891-006				UNK		0.105		1102	2.29			
			1.0000				N/A					
Replicates	1125.0	1104.3	1106.5	1073.2								
K2407891-007				UNK		0.191		1872	2.26			
			1.0000				N/A					
Replicates	1917.6	1878.4	1868.7	1823.9								
CCV4				CCV		4.902		44032	1.49			
			1.0000				98.04					
Replicates	44410.4	44533.3	44089.6	43095.6								
CCB4				CCB		-0.005		125	56.22			
			1.0000				N/A					
Replicates	136.3	104.5	106.9	151.2								
K2407891-008				UNK		1.004		9154	1.79			
			1.0000				N/A					
Replicates	9257.3	9272.2	9161.5	8923.7								
K2407891-009				UNK		0.517		4796	2.24			
			1.0000				N/A					
Replicates	4858.0	4881.1	4792.8	4651.0								
K2407891-010				UNK		0.895		8172	1.95			
			1.0000				N/A					
Replicates	8270.9	8292.1	8176.0	7950.8								
K2407891-011				UNK		0.012		272	9.36			
			1.0000				N/A					
Replicates	272.2	276.5	281.6	258.3								

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
K2407891-012				UNK		0.286		2725	2.29			
		1.0000					N/A					
Replicates	2746.6	2786.3	2720.4	2647.3								
K2407891-013				UNK		0.016		311	10.60			
		1.0000					N/A					
Replicates	325.1	305.8	322.8	292.1								
K2407891-014				UNK		0.098		1046	0.66			
		1.0000					N/A					
Replicates	1037.5	1048.5	1050.7	1047.3								
KQ2411922-03				UNK		-0.001		155	281.01			
		1.0000					N/A					
Replicates	124.0	192.7	153.7	150.5								
KQ2411922-04				UNK		4.737		42557	1.32			
		1.0000					N/A					
Replicates	42849.3	43011.3	42616.1	41752.3								
K2407895-001				UNK		0.086		931	3.58			
		1.0000					N/A					
Replicates	952.3	943.0	938.9	891.0								
CCV5				CCV		4.924		44227	1.60			
		1.0000					98.48					
Replicates	44687.0	44732.7	44273.8	43216.2								
CCB5				CCB		-0.003		137	36.06			
		1.0000					N/A					
Replicates	135.6	125.5	135.3	150.5								
KQ2411922-01				UNK		0.093		994	1.82			
		1.0000					N/A					
Replicates	1005.6	1008.8	978.7	984.2								
KQ2411922-02				UNK		4.881		43842	1.53			
		1.0000					N/A					
Replicates	44211.1	44376.7	43899.2	42882.4								
K2407895-001A				UNK		5.085		45667	0.37			
		1.0000					N/A					
Replicates	45502.2	45769.2	45848.5	45547.5								
K2407895-002				UNK		0.060		705	3.84			
		1.0000					N/A					
Replicates	685.1	733.5	706.4	696.2								
K2407895-003				UNK		0.089		960	0.88			
		1.0000					N/A					
Replicates	960.1	967.4	963.0	950.9								
K2407895-004				UNK		0.121		1249	1.54			
		1.0000					N/A					
Replicates	1240.6	1247.8	1272.4	1234.3								

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407895-005				UNK		0.162		1614	1.63				
			1.0000				N/A						
Replicates	1628.4	1601.2	1638.1	1587.1									
K2407895-006				UNK		0.157		1570	2.24				
			1.0000				N/A						
Replicates	1583.9	1574.3	1597.8	1525.4									
K2407895-007				UNK		0.191		1873	2.13				
			1.0000				N/A						
Replicates	1899.4	1885.4	1889.2	1819.5									
K2407895-008				UNK		0.214		2080	1.79				
			1.0000				N/A						
Replicates	2113.1	2104.7	2057.0	2044.0									
CCV6				CCV		4.861		43663	1.38				
			1.0000				97.22						
Replicates	44005.6	44114.2	43736.7	42795.5									
CCB6				CCB		-0.003		137	59.63				
			1.0000				N/A						
Replicates	151.0	151.1	127.3	117.5									
K2407895-009				UNK		0.107		1124	2.20				
			1.0000				N/A						
Replicates	1118.8	1152.7	1102.2	1121.7									
K2407895-010				UNK		0.452		4207	1.74				
			1.0000				N/A						
Replicates	4227.7	4269.2	4223.5	4106.0									
K2407895-011				UNK		0.448		4171	1.63				
			1.0000				N/A						
Replicates	4204.9	4229.2	4170.4	4080.2									
K2407895-012				UNK		0.466		4332	1.33				
			1.0000				N/A						
Replicates	4348.7	4376.3	4352.0	4251.2									
K2407895-013				UNK		2.350		21193	1.56				
			1.0000				N/A						
Replicates	21377.8	21447.5	21225.9	20720.9									
CCV7				CCV		4.896		43974	1.40				
			1.0000				97.91						
Replicates	44325.5	44432.0	44051.7	43088.2									
CCB7				CCB		-0.004		127	27.42				
			1.0000				N/A						
Replicates	142.5	119.0	122.8	125.0									

Preparation Information Benchsheet

Prep Run#: 441122
Team: Metals/SSOLADEY
Number of Copies to make: 2

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2410304-01	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2410304-02	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	KQ2410304-03	DLCS		7471B/Hg		Solid	0.5g	50.00mL	
4	K2406875-010	CVAA-04	.01	7471B/Hg		Soil	0.5g	50.00mL	
5	K2406876-010	CVAA-04	.09	7471B/Hg		Soil	0.5g	50.00mL	

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2410304-02 0.25mL KQ2410304-03 0.25mL

Name: K-MET Hg LOD LOQ 10ug/L Inventory ID 236605 Logbook Ref: HG4-11-T Expires On: 08/03/2024

K2406875-010 0.25mL K2406876-010 1.00mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/2/24 13:00	Started:	8/2/24 13:00
Finished:	8/2/24 13:30	Finished:	8/2/24 13:30
By:	SSOLADEY	By:	SSOLADEY
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	Hg-43188965	Digestion		
HG-39591307	Digestion			K-U72662	Digestion		

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: m Date: 8.5.24

★ DOD

Preparation Information Benchsheet

CVAA-04 7471 LOQ/LOD

Prep Run#: 441122
Team: Metals/SSOLADEY
Number of Copies to make: 2

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/8/24 07:06 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
							.5g → 50mL					
1	KQ2410304-01	MB			7471B / Hg	Solid						
2	KQ2410304-02	LCS * .25 HG4-11-N			7471B / Hg	Solid						96
3	KQ2410304-03	DLCS *			7471B / Hg	Solid						96
4	K2406875-010	CVAA-04 (LOD)	.01		7471B / Hg	Soil						78
5	K2406876-010	CVAA-04 (LOQ)	.09		7471B / Hg	Soil						98

make 10ppb Hg (HG4-11-T)

KMnO4 HG4-11-G

Spike 6875 w/ .25mL (looking for .05 ppb)

6876 w/ 1.0mL (looking for .2ppb)

Comments: HG4-11-U B14L27T95 13:00 - 13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 442430
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411786-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411786-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407840-001	C2-Q1	.01	7471B/Hg		Biosolids Solids	0.528g	50.00mL	TRICKMAN K-BALANCE-55
4	KQ2411786-01	K2407840-001 DUP	.01	7471B/Hg		Solid	0.566g	50.00mL	TRICKMAN K-BALANCE-55
5	KQ2411786-02	K2407840-001 MS	.01	7471B/Hg		Solid	0.548g	50.00mL	TRICKMAN K-BALANCE-55
6	K2407840-002	C2-Q2	.01	7471B/Hg		Biosolids Solids	0.597g	50.00mL	TRICKMAN K-BALANCE-55
7	K2407840-003	C2-Q3	.01	7471B/Hg		Biosolids Solids	0.567g	50.00mL	TRICKMAN K-BALANCE-55
8	K2407840-004	C2-Q4	.01	7471B/Hg		Biosolids Solids	0.561g	50.00mL	TRICKMAN K-BALANCE-55

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411786-02 0.25mL KQ2411786-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/2/24 13:00	Started:	8/2/24 13:00
Finished:	8/2/24 13:30	Finished:	8/2/24 13:52
By:	SSOLADEY	By:	SSOLADEY
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	K-U72662	Digestion		
Hg-43188965	Digestion			HG-39591307	Digestion		

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: mc Date: 8.5.24 Spike Witness: TRICKMAN Date:

Preparation Information Benchsheet

Prep Run#: 442430
Team: Metals/TRICKMAN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/31/24 07:01 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411786-03**	MB .25 H64-11-N			7471B / Hg	Solid						
2	**KQ2411786-04**	LCS *			7471B / Hg	Solid						96
3	**K2407840-001**	C2-Q1	.01		7471B / Hg	Biosolids Solids						
4	**KQ2411786-01**	K2407840-001 DUP	.01		7471B / Hg	Solid						
5	**KQ2411786-02**	K2407840-001 MS * 96+	.01		7471B / Hg P396	Solid						
6	**K2407840-002**	C2-Q2	.01		7471B / Hg	Biosolids Solids						
7	**K2407840-003**	C2-Q3	.01		7471B / Hg	Biosolids Solids						
8	**K2407840-004**	C2-Q4	.01		7471B / Hg	Biosolids Solids						

Comments: CalStd H64-11-U B14T27T95 13:00-13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442430 **Container Lot No:** 2108282 **Prep Due Date:** Aug-09-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407840-001	.01	Hg : 7471B/ DS TV .473	0.528g	.0240	TRICKMAN K-BALANCE-55
2	K2407840-001 DUP KQ2411786-01	.01	Hg : 7471B/	0.566g	.0271	TRICKMAN K-BALANCE-55
3	K2407840-001 MS KQ2411786-02	.01	Hg : 7471B/ TV .456	0.548g		TRICKMAN K-BALANCE-55
4	K2407840-002	.01	Hg : 7471B/	0.597g		TRICKMAN K-BALANCE-55
5	K2407840-003	.01	Hg : 7471B/	0.567g		TRICKMAN K-BALANCE-55
6	K2407840-004	.01	Hg : 7471B/	0.561g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time:	Received By:	Date/Time:
	7-31-24 07:08		1230 8/2/24

Preparation Information Benchsheet

Prep Run#: 442589
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411974-01	MB		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
2	KQ2411974-02	LCS		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
3	KQ2411974-03	DLCS		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
4	K2407534-001	Sample	.01	7471A/Hg		NonAq Liquid	0.5010g	50.00mL	

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411974-02 0.25mL KQ2411974-03 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step: Weigh
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Step: Digestion
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	K-Balance-37	Weigh	Date Checked	080224 MS
K-U72662	Digestion			Hg-43188965	Digestion		
HG-39591307	Digestion						

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: _____ Date: 8.5.24 Spike Witness: MSOLADEY Date: _____

Preparation Information Benchsheet

Prep Run#: 442589
Team: Metals/MSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/2/24 10:49 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411974-01**	MB			7471A / Hg	NonAq Liquid	0.52					
2	**KQ2411974-02**	LCS .25 HG4-11-N			7471A / Hg	NonAq Liquid	↓					94
3	**KQ2411974-03**	DLCS			7471A / Hg	NonAq Liquid	↓					94
4	**K2407534-001**	Sample	.01		7471A / Hg	NonAq Liquid	0.501g					

K-Balance 77 8/2/24 MW

Comments: Cal Std HG4-11-U BIHTL27T95 13:00 - 13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 442520
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411911-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411911-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407891-001	2024 KGMUSC S1	.04	7471B/Hg		Soil	0.564g	50.00mL	ZBIBI k-balance-50
4	KQ2411911-01	K2407891-001 DUP	.04	7471B/Hg		Solid	0.526g	50.00mL	ZBIBI k-balance-50
5	KQ2411911-02	K2407891-001 MS	.04	7471B/Hg		Solid	0.580g	50.00mL	ZBIBI k-balance-50
6	K2407891-002	2024 KGMUSC S2	.04	7471B/Hg		Soil	0.581g	50.00mL	ZBIBI k-balance-50
7	K2407891-003	2024 KGMUSC S3	.04	7471B/Hg		Soil	0.593g	50.00mL	ZBIBI k-balance-50
8	K2407891-004	2024 KGMUSC SP2 S1	.04	7471B/Hg		Soil	0.554g	50.00mL	ZBIBI k-balance-50
9	K2407891-005	2024 KGMUSC SP2 S2	.02	7471B/Hg		Soil	0.585g	50.00mL	ZBIBI k-balance-50
10	K2407891-006	2024 KGMUSC SP2 S3	.04	7471B/Hg		Soil	0.593g	50.00mL	ZBIBI k-balance-50
11	K2407891-007	2024 KGMLSH S3	.04	7471B/Hg		Soil	0.554g	50.00mL	ZBIBI k-balance-50
12	K2407891-008	2024 KGMWFSC S1	.04	7471B/Hg		Soil	0.595g	50.00mL	ZBIBI k-balance-50
13	K2407891-009	2024 KGMWFSC S2	.04	7471B/Hg		Soil	0.541g	50.00mL	ZBIBI k-balance-50
14	K2407891-010	2024 KGMWFSC S3	.04	7471B/Hg		Soil	0.586g	50.00mL	ZBIBI k-balance-50
15	K2407891-011	2024 KGM HJC S1	.04	7471B/Hg		Soil	0.598g	50.00mL	ZBIBI k-balance-50
16	K2407891-012	2024 KGM HJC S2	.04	7471B/Hg		Soil	0.545g	50.00mL	ZBIBI k-balance-50
17	K2407891-013	2024 KGM HJC S3	.04	7471B/Hg		Soil	0.558g	50.00mL	ZBIBI k-balance-50
18	K2407891-014	2024 KGMLSH S2	.04	7471B/Hg		Soil	0.516g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411911-02 0.25mL KQ2411911-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step: Weigh
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Step: Digestion
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Preparation Information Benchsheet

Prep Run#: 442520
Team: Metals/SSOLADEY

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	K-BlockDigester-15	Digestion	IR Thermometer ID: IR03	
K-BlockDigester-15	Digestion	Temperature	94 deg C	K-BlockDigester-15	Digestion	Temperature Check Location	27
K-U72662	Digestion			Hg-43188965	Digestion		
HG-39591307	Digestion						

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: _____ Date: 8.5.24 Spike Witness: ZBIBI Date: _____

Preparation Information Benchsheet

Prep Run#: 442520
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/1/24 10:50 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411911-03**	MB .25 HG4-11-N			7471B / Hg	Solid						
2	**KQ2411911-04**	LCS ✦			7471B / Hg	Solid						94
3	**K2407891-001**	2024 KGMUSC S1	.04		7471B / Hg	Soil						
4	**KQ2411911-01**	K2407891-001 DUP ✦	.04		7471B / Hg } non homogenous	Solid						
5	**KQ2411911-02**	K2407891-001 MS ✦ 90	.04		7471B / Hg } PS 97	Solid						
6	**K2407891-002**	2024 KGMUSC S2	.04		7471B / Hg	Soil						
7	**K2407891-003**	2024 KGMUSC S3	.04		7471B / Hg	Soil						
8	**K2407891-004**	2024 KGMUSC SP2 S1	.04		7471B / Hg	Soil						
9	**K2407891-005**	2024 KGMUSC SP2 S2	.02		7471B / Hg	Soil						
10	**K2407891-006**	2024 KGMUSC SP2 S3	.04		7471B / Hg	Soil						
11	**K2407891-007**	2024 KGMLSH S3	.04		7471B / Hg	Soil						
12	**K2407891-008**	2024 KGMWFSC S1	.04		7471B / Hg	Soil						
13	**K2407891-009**	2024 KGMWFSC S2	.04		7471B / Hg	Soil						
14	**K2407891-010**	2024 KGMWFSC S3	.04		7471B / Hg	Soil						
15	**K2407891-011**	2024 KGM HJC S1	.04		7471B / Hg	Soil						
16	**K2407891-012**	2024 KGM HJC S2	.04		7471B / Hg	Soil						
17	**K2407891-013**	2024 KGM HJC S3	.04		7471B / Hg	Soil						
18	**K2407891-014**	2024 KGMLSH S2	.04		7471B / Hg	Soil						

Cal B14T27T95

Cal Std
Comments: HG4-11-U B15TL27T94 13:00-13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442520 **Container Lot No:** 2206050 **Prep Due Date:** Aug-07-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407891-001	.04	Hg : 7471B/ PS TV .4413	0.564g	.0272 > 52% RPD	ZBIBI k-balance-50
2	K2407891-001 DUP KQ2411911-01	.04	Hg : 7471B/	0.526g	.0466 non homogenous	ZBIBI k-balance-50
3	K2407891-001 MS KQ2411911-02	.04	Hg : 7471B/ TV .431	0.580g		ZBIBI k-balance-50
4	K2407891-002	.04	Hg : 7471B/	0.581g		ZBIBI k-balance-50
5	K2407891-003	.04	Hg : 7471B/	0.593g		ZBIBI k-balance-50
6	K2407891-004	.04	Hg : 7471B/	0.554g		ZBIBI k-balance-50
7	K2407891-005	.02	Hg : 7471B/	0.585g		ZBIBI k-balance-50
8	K2407891-006	.04	Hg : 7471B/	0.593g		ZBIBI k-balance-50
9	K2407891-007	.04	Hg : 7471B/	0.554g		ZBIBI k-balance-50
10	K2407891-008	.04	Hg : 7471B/	0.595g		ZBIBI k-balance-50
11	K2407891-009	.04	Hg : 7471B/	0.541g		ZBIBI k-balance-50
12	K2407891-010	.04	Hg : 7471B/	0.586g		ZBIBI k-balance-50
13	K2407891-011	.04	Hg : 7471B/	0.598g		ZBIBI k-balance-50
14	K2407891-012	.04	Hg : 7471B/	0.545g		ZBIBI k-balance-50
15	K2407891-013	.04	Hg : 7471B/	0.558g		ZBIBI k-balance-50
16	K2407891-014	.04	Hg : 7471B/	0.516g		ZBIBI k-balance-50

Relinquished By:	Date/Time:	Received By:	Date/Time:
ZB	8/1/24 10:55		8/2/24 1230

Preparation Information Benchsheet

Prep Run#: 442534
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411922-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411922-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407895-001	2024 KGM UJC S1	.02	7471B/Hg		Soil	0.557g	50.00mL	TRICKMAN K-BALANCE-55
4	KQ2411922-01	K2407895-001 DUP	.02	7471B/Hg		Solid	0.521g	50.00mL	TRICKMAN K-BALANCE-55
5	KQ2411922-02	K2407895-001 MS	.02	7471B/Hg		Solid	0.521g	50.00mL	TRICKMAN K-BALANCE-55
6	K2407895-002	2024 KGM UJC S2	.02	7471B/Hg		Soil	0.593g	50.00mL	TRICKMAN K-BALANCE-55
7	K2407895-003	2024 KGM UJC S3	.02	7471B/Hg		Soil	0.544g	50.00mL	TRICKMAN K-BALANCE-55
8	K2407895-004	2024 KGM USH S1	.02	7471B/Hg		Soil	0.569g	50.00mL	TRICKMAN K-BALANCE-55
9	K2407895-005	2024 KGM USH S2	.02	7471B/Hg		Soil	0.555g	50.00mL	TRICKMAN K-BALANCE-55
10	K2407895-006	2024 KGM USH S3	.02	7471B/Hg		Soil	0.528g	50.00mL	TRICKMAN K-BALANCE-55
11	K2407895-007	2024 KGMEFSC S1	.02	7471B/Hg		Soil	0.503g	50.00mL	TRICKMAN K-BALANCE-55
12	K2407895-008	2024 KGMEFSC S2	.02	7471B/Hg		Soil	0.536g	50.00mL	TRICKMAN K-BALANCE-55
13	K2407895-009	2024 KGMEFSC S3	.02	7471B/Hg		Soil	0.567g	50.00mL	TRICKMAN K-BALANCE-55
14	K2407895-010	2024 KGM LSC S1	.02	7471B/Hg		Soil	0.515g	50.00mL	TRICKMAN K-BALANCE-55
15	K2407895-011	2024 KGM LSC S2	.02	7471B/Hg		Soil	0.565g	50.00mL	TRICKMAN K-BALANCE-55
16	K2407895-012	2024 KGM LSC S3	.02	7471B/Hg		Soil	0.544g	50.00mL	TRICKMAN K-BALANCE-55
17	K2407895-013	2024 KGM LSH S1	.02	7471B/Hg		Soil	0.517g	50.00mL	TRICKMAN K-BALANCE-55

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411922-02 0.25mL KQ2411922-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step: Weigh
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Step: Digestion
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Preparation Information Benchsheet

Prep Run#: 442534
Team: Metals/SSOLADEY

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	K-BlockDigester-15	Digestion	IR Thermometer ID: IR03	
K-BlockDigester-15	Digestion	Temperature	94 deg C	K-BlockDigester-15	Digestion	Temperature Check Location	27
Hg-43188965	Digestion			HG-39591307	Digestion		
K-U72662	Digestion						

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: [signature] Date: 8.5.24 Spike Witness: TRICKMAN Date:

Preparation Information Benchsheet

Prep Run#: 442534
Team: Metals/TRICKMAN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/1/24 12:09 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411922-03**	MB .25 HG4-11-N			7471B / Hg	Solid						
2	**KQ2411922-04**	LCS			7471B / Hg	Solid						95
3	**K2407895-001**	2024 KGM UJC S1	.02		7471B / Hg	Soil						
4	**KQ2411922-01**	K2407895-001 DUP	.02		7471B / Hg	Solid						
5	**KQ2411922-02**	K2407895-001 MS 96	.02		7471B / Hg PS 100	Solid						
6	**K2407895-002**	2024 KGM UJC S2	.02		7471B / Hg	Soil						
7	**K2407895-003**	2024 KGM UJC S3	.02		7471B / Hg	Soil						
8	**K2407895-004**	2024 KGM USH S1	.02		7471B / Hg	Soil						
9	**K2407895-005**	2024 KGM USH S2	.02		7471B / Hg	Soil						
10	**K2407895-006**	2024 KGM USH S3	.02		7471B / Hg	Soil						
11	**K2407895-007**	2024 KGMEFSC S1	.02		7471B / Hg	Soil						
12	**K2407895-008**	2024 KGMEFSC S2	.02		7471B / Hg	Soil						
13	**K2407895-009**	2024 KGMEFSC S3	.02		7471B / Hg	Soil						
14	**K2407895-010**	2024 KGM LSC S1	.02		7471B / Hg	Soil						
15	**K2407895-011**	2024 KGM LSC S2	.02		7471B / Hg	Soil						
16	**K2407895-012**	2024 KGM LSC S3	.02		7471B / Hg	Soil						
17	**K2407895-013**	2024 KGM LSH S1	.02		7471B / Hg	Soil						

Cal B14TL27T95

Comments: CalStd HG4-11-U B15TL27T94 13:00-13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442534 **Container Lot No:** 2108282 **Prep Due Date:** Aug-07-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407895-001	.02	Hg : 7471B/	0.557g		TRICKMAN K-BALANCE-55
2	K2407895-001 DUP KQ2411922-01	.02	Hg : 7471B/	0.521g		TRICKMAN K-BALANCE-55
3	K2407895-001 MS KQ2411922-02	.02	Hg : 7471B/	0.521g		TRICKMAN K-BALANCE-55
4	K2407895-002	.02	Hg : 7471B/	0.593g		TRICKMAN K-BALANCE-55
5	K2407895-003	.02	Hg : 7471B/	0.544g		TRICKMAN K-BALANCE-55
6	K2407895-004	.02	Hg : 7471B/	0.569g		TRICKMAN K-BALANCE-55
7	K2407895-005	.02	Hg : 7471B/	0.555g		TRICKMAN K-BALANCE-55
8	K2407895-006	.02	Hg : 7471B/	0.528g		TRICKMAN K-BALANCE-55
9	K2407895-007	.02	Hg : 7471B/	0.503g		TRICKMAN K-BALANCE-55
10	K2407895-008	.02	Hg : 7471B/	0.536g		TRICKMAN K-BALANCE-55
11	K2407895-009	.02	Hg : 7471B/	0.567g		TRICKMAN K-BALANCE-55
12	K2407895-010	.02	Hg : 7471B/	0.515g		TRICKMAN K-BALANCE-55
13	K2407895-011	.02	Hg : 7471B/	0.565g		TRICKMAN K-BALANCE-55
14	K2407895-012	.02	Hg : 7471B/	0.544g		TRICKMAN K-BALANCE-55
15	K2407895-013	.02	Hg : 7471B/	0.517g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time: 8-1-24 12:11	Received By:	Date/Time: 1230 8/2/24

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www.alsglobal.com

September 20, 2024

Analytical Report for Service Request No: K2408463

Erika King
Alaska Department of Fish and Game
Division of Habitat
802 3rd Street
P.O. Box 110024
Douglas, AK 99811-0024

RE: 2024 Kensington Biomonitoring

Dear Erika,

Enclosed are the results of the sample(s) submitted to our laboratory August 15, 2024
For your reference, these analyses have been assigned our service request number **K2408463.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

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www.alsglobal.com

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- Metals

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Client: Alaska Department of Fish and Game
Project: 2024 Kensington Biomonitoring
Sample Matrix: Soil

Service Request: K2408463
Date Received: 08/15/2024

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Three soil samples were received for analysis at ALS Environmental on 08/15/2024. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

Method 200.8, 08/27/2024:The Relative Percent Difference (RPD) for the replicate analysis of Silver in sample 2024KGMLJCS1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 09/20/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
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ALS Environmental

138749

CHAIN OF CUSTODY

138749

001

SR# KC184463

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: 2024 Kensington Bulk Sampling	Project Number:
Project Manager: Erika King	
Company: ADF&G	
Address, City, State: 802 3rd St Douglas, AK	
Phone #: 907-465-6979	email: erika.king@alaska.gov
Sampler Signature:	Sampler Printed Name: Erika King

CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix	NUMBER OF CONTAINERS	7D: 160.4 Modified / TVS	7D: PSEP Sulfide / PSEP Sulfide	14D: PSEP TOC / PSEP TOC	28D: 7471B / Hg	180D: 200.8 / Metals T	180D: ASTM D422M / PartSize	999D: 160.3 Modified / TS	F	2	3	4	5	Remarks
1. 2024KGMLJCS1		8/9/24 1400 AK	Soil	3	X	X	X	X	X	X	X						Everything
2. 2024KGMLJCS2		8/9/24 1400 AK	Soil	2	X		X	X	X	X	X						everything but sulfide
3. 2024KGMLJCS3		8/9/24 1400 AK	Soil	2	X		X	X	X	X	X						everything but sulfide
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

✓ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.#_____

Bill To: Pete Straw
Coeur, AK
pstraw@coeur.com

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Please send lab report to erika.king@alaska.gov and Kate.Kanouse@alaska.gov
please send billing to pete straw at pstraw@coeur.com

* did not have enough zinc acetate to preserve sulfide samples for S2&S3.

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Erika King	Marilyn Miller				
Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
ADF&G	ACS				
Firm	Firm	Firm	Firm	Firm	Firm
8/13/24 1030	8/15/24 0920				
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PM MH

Cooler Receipt and Preservation Form

Client ADF&G Service Request K24 084463

Received: 8/15/24 Opened: 8/15/24 By: VM Unloaded: 8/15/24 By: VM

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
3.3		IR01				278238253685	

4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM: NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM NA Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? NA Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

SHORT HOLD

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Total Solids

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/9/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024KGMLJCS1	K2408463-001	**70.2**	-	-	1	08/15/24 14:00	
2024KGMLJCS2	K2408463-002	**69.8**	-	-	1	08/15/24 14:00	
2024KGMLJCS3	K2408463-003	**73.4**	-	-	1	08/15/24 14:00	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/15/24

Replicate Sample Summary
Inorganic Parameters

Sample Name:	2024KGMLJCS3	**Units:**	Percent
Lab Code:	K2408463-003	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2408463-003DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	-	-	73.4	71.4	72.4	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/9/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
Analysis Method:	160.4 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method

Solids, Total Volatile

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024KGMLJCS1	K2408463-001	**2.00**	0.10	-	1	08/15/24 14:30	
2024KGMLJCS2	K2408463-002	**1.80**	0.10	-	1	08/15/24 14:30	
2024KGMLJCS3	K2408463-003	**2.10**	0.10	-	1	08/15/24 14:30	
Method Blank	K2408463-MB	ND	0.10	-	1	08/15/24 14:30	U

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/15/24

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	2024KGMLJCS1	**Units:**	Percent
Lab Code:	K2408463-001	**Basis:**	Dry, per Method

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample K2408463-001DUP Result	Average	RPD	RPD Limit
Solids, Total Volatile	160.4 Modified	0.10	-	2.00	2.10	2.05	5	20

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General Chemistry

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www.alsglobal.com

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/9/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry

Sulfide, Total

Sample Name	Lab Code	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024KGMLJCS1	K2408463-001	**0.5**	**J**	1.4	0.5	1	08/16/24 17:45	8/16/24	
Method Blank	K2408463-MB	ND	U	1.0	0.3	1	08/16/24 17:45	8/16/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/16/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024KGMLJCS1	**Units:**	mg/Kg
Lab Code:	K2408463-001	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2408463-001DUP Result	Triplicate K2408463-001TRP Result	Average	RSD	RSD Limit
Sulfide, Total	1.3	0.5	0.5	0.6	ND	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Printed 9/19/2024 2:11:54 PM

SuperSet Reference:24-0000706006 rev 00

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/16/24
		Date Extracted:	08/16/24

Duplicate Matrix Spike Summary
Sulfide, Total

Sample Name:	2024KGMLJCS1	**Units:**	mg/Kg
Lab Code:	K2408463-001	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

		Matrix Spike			**Duplicate Matrix Spike**					
		K2408463-001MS			K2408463-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfide, Total	0.5 J	530	500	105	540	520	104	28-175	2	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Analyzed:**	08/16/24
Sample Matrix:	Soil	**Date Extracted:**	08/16/24

Lab Control Sample Summary
Sulfide, Total

Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	850988

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2408463-LCS	427	380	112	39-166

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

Continuing Calibration Verification (CCV) Summary

Sulfide, Total

Analysis Method: PSEP Sulfide **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	850988	KQ2413410-01	08/16/24 17:45	0.572	0.602	105	90-110
CCV2	850988	KQ2413410-02	08/16/24 17:45	0.572	0.606	106	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2408463
Project: 2024 Kensington Biomonitoring

Continuing Calibration Blank (CCB) Summary
Sulfide, Total

Analysis Method: PSEP Sulfide **Units:**mg/Kg

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	850988	KQ2413410-03	08/16/24 17:45	1.0	0.3	ND	U
CCB2	850988	KQ2413410-04	08/16/24 17:45	1.0	0.3	ND	U

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/9/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	ALS SOP	**Basis:**	Dry, per Method

Carbon, Total Organic (TOC)

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024KGMLJCS1	K2408463-001	**0.37**	0.10	0.005	1	08/19/24 08:34	8/19/24	
2024KGMLJCS2	K2408463-002	**0.57**	0.10	0.005	1	08/19/24 08:34	8/19/24	
2024KGMLJCS3	K2408463-003	**0.29**	0.10	0.005	1	08/19/24 08:34	8/19/24	
Method Blank	K2408463-MB	ND U	0.10	0.005	1	08/19/24 08:34	8/19/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/19/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024KGMLJCS1	**Units:**	Percent
Lab Code:	K2408463-001	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	ALS SOP		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2408463-001DUP Result	Triplicate K2408463-001TRP Result	Average	RSD	RSD Limit
Carbon, Total Organic (TOC)	0.10	0.005	0.37	0.36	0.37	0.367	2	27

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/19/24
		Date Extracted:	08/19/24

Duplicate Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	2024KGMLJCS1	**Units:**	Percent
Lab Code:	K2408463-001	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	ALS SOP		

		Matrix Spike			**Duplicate Matrix Spike**					
		K2408463-001MS			K2408463-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic (TOC)	0.37	2.79	2.42	100	2.74	2.42	98	69-123	2	27

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Analyzed:**	08/19/24
Sample Matrix:	Soil	**Date Extracted:**	08/19/24

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	ALS SOP	**Basis:**	Dry, per Method
		Analysis Lot:	851047

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2408463-LCS	3.26	2.99	109	74-118

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:** Percent

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	851047	KQ2412870-01	08/19/24 08:34	12.0	12.4	103	90-110
CCV2	851047	KQ2412870-02	08/19/24 08:34	12.0	12.3	102	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2408463
Project: 2024 Kensington Biomonitoring

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:**Percent

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	851047	KQ2412870-03	08/19/24 08:34	0.10	0.005	ND	U
CCB2	851047	KQ2412870-04	08/19/24 08:34	0.10	0.005	ND	U

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	09/06/24

Particle Size Determination
ASTM D422M

Sample Name: 2024KGMLJCS1
Lab Code: K2408463-001

Sand Fraction: Weight (Grams)	24.8680
Sand Fraction: Weight Recovered (Grams)	24.8134
Sand Fraction: Percent Recovery	99.78

Weight as received (Grams)	38.108
Percent Solids	70.2
Weight Oven-Dried (Grams)	26.7518

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	2.8504	10.65
Gravel, Fine	2.00 mm	10	2.4538	9.17
Sand, Very Coarse	0.850 mm	20	2.5193	9.42
Sand, Coarse	0.425 mm	40	3.6051	13.48
Sand, Medium	0.250 mm	60	5.8052	21.70
Sand, Fine	0.106 mm	140	6.7955	25.40
Sand, Very Fine	0.075 mm	200	0.6935	2.59
Silt			0.8300	3.10
Clay			0.0450	0.17
		Total	25.5978	95.68

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	09/06/24

Particle Size Determination
ASTM D422M

Sample Name: 2024KGMLJCS2
Lab Code: K2408463-002

Sand Fraction: Weight (Grams)	24.5811
Sand Fraction: Weight Recovered (Grams)	24.5182
Sand Fraction: Percent Recovery	99.74

Weight as received (Grams)	33.734
Percent Solids	69.8
Weight Oven-Dried (Grams)	23.5463

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.3724	1.58
Gravel, Fine	2.00 mm	10	2.3764	10.09
Sand, Very Coarse	0.850 mm	20	8.8984	37.79
Sand, Coarse	0.425 mm	40	8.2035	34.84
Sand, Medium	0.250 mm	60	3.5071	14.89
Sand, Fine	0.106 mm	140	1.0752	4.57
Sand, Very Fine	0.075 mm	200	0.0604	0.26
Silt			0.0700	0.30
Clay			0.0600	0.25
		Total	24.6234	104.57

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	09/06/24

Particle Size Determination
ASTM D422M

Sample Name: 2024KGMLJCS3
Lab Code: K2408463-003

Sand Fraction: Weight (Grams)	23.8735
Sand Fraction: Weight Recovered (Grams)	23.7963
Sand Fraction: Percent Recovery	99.68

Weight as received (Grams)	37.456
Percent Solids	73.4
Weight Oven-Dried (Grams)	27.4927

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	0.00
Gravel, Fine	2.00 mm	10	0.5995	2.18
Sand, Very Coarse	0.850 mm	20	1.4953	5.44
Sand, Coarse	0.425 mm	40	2.8967	10.54
Sand, Medium	0.250 mm	60	6.1397	22.33
Sand, Fine	0.106 mm	140	10.7817	39.22
Sand, Very Fine	0.075 mm	200	1.5831	5.76
Silt			1.4350	5.22
Clay			0.0800	0.29
		Total	25.0110	90.98

Metals

ALS Environmental—Kelso Laboratory
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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24 14:00
Sample Matrix:	Soil	**Date Received:**	08/15/24 09:20
Sample Name:	2024KGMLJCS1	**Basis:**	Dry
Lab Code:	K2408463-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13100**	mg/Kg	2.8	0.8	5	08/27/24 10:00	08/19/24	
Arsenic	200.8	**17.5**	mg/Kg	0.70	0.08	5	08/27/24 10:00	08/19/24	
Cadmium	200.8	**0.166**	mg/Kg	0.028	0.010	5	08/27/24 10:00	08/19/24	
Chromium	200.8	**30.1**	mg/Kg	0.28	0.08	5	08/27/24 10:00	08/19/24	
Copper	200.8	**71.6**	mg/Kg	0.14	0.06	5	08/27/24 10:00	08/19/24	
Lead	200.8	**10.1**	mg/Kg	0.070	0.028	5	08/27/24 10:00	08/19/24	
Mercury	7471B	**0.026**	mg/Kg	0.019	0.002	1	08/22/24 08:25	08/21/24	
Nickel	200.8	**23.0**	mg/Kg	0.28	0.04	5	08/27/24 10:00	08/19/24	
Selenium	200.8	**0.3**	mg/Kg	1.4	0.1	5	08/27/24 10:00	08/19/24	**J**
Silver	200.8	**0.353**	mg/Kg	0.028	0.006	5	08/27/24 10:00	08/19/24	
Zinc	200.8	**93.7**	mg/Kg	0.70	0.28	5	08/27/24 10:00	08/19/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24 14:00
Sample Matrix:	Soil	**Date Received:**	08/15/24 09:20
Sample Name:	2024KGMLJCS2	**Basis:**	Dry
Lab Code:	K2408463-002		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13400**		mg/Kg	2.3	0.7	5	08/27/24 10:07	08/19/24	
Arsenic	200.8	**17.0**		mg/Kg	0.57	0.07	5	08/27/24 10:07	08/19/24	
Cadmium	200.8	**0.271**		mg/Kg	0.023	0.008	5	08/27/24 10:07	08/19/24	
Chromium	200.8	**26.2**		mg/Kg	0.23	0.07	5	08/27/24 10:07	08/19/24	
Copper	200.8	**53.2**		mg/Kg	0.11	0.05	5	08/27/24 10:07	08/19/24	
Lead	200.8	**7.41**		mg/Kg	0.057	0.023	5	08/27/24 10:07	08/19/24	
Mercury	7471B	**0.035**		mg/Kg	0.022	0.002	1	08/22/24 08:36	08/21/24	
Nickel	200.8	**21.4**		mg/Kg	0.23	0.03	5	08/27/24 10:07	08/19/24	
Selenium	200.8	**0.2**	**J**	mg/Kg	1.1	0.1	5	08/27/24 10:07	08/19/24	
Silver	200.8	**0.082**		mg/Kg	0.023	0.005	5	08/27/24 10:07	08/19/24	
Zinc	200.8	**104**		mg/Kg	0.57	0.23	5	08/27/24 10:07	08/19/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24 14:00
Sample Matrix:	Soil	**Date Received:**	08/15/24 09:20
Sample Name:	2024KGMLJCS3	**Basis:**	Dry
Lab Code:	K2408463-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**11400**	mg/Kg	2.1	0.6	5	08/27/24 10:10	08/19/24	
Arsenic	200.8	**14.2**	mg/Kg	0.52	0.06	5	08/27/24 10:10	08/19/24	
Cadmium	200.8	**0.158**	mg/Kg	0.021	0.007	5	08/27/24 10:10	08/19/24	
Chromium	200.8	**23.1**	mg/Kg	0.21	0.06	5	08/27/24 10:10	08/19/24	
Copper	200.8	**65.9**	mg/Kg	0.10	0.04	5	08/27/24 10:10	08/19/24	
Lead	200.8	**9.21**	mg/Kg	0.052	0.021	5	08/27/24 10:10	08/19/24	
Mercury	7471B	**0.026**	mg/Kg	0.018	0.002	1	08/22/24 08:41	08/21/24	
Nickel	200.8	**18.0**	mg/Kg	0.21	0.03	5	08/27/24 10:10	08/19/24	
Selenium	200.8	**0.3**	mg/Kg	1.0	0.09	5	08/27/24 10:10	08/19/24	**J**
Silver	200.8	**0.188**	mg/Kg	0.021	0.004	5	08/27/24 10:10	08/19/24	
Zinc	200.8	**84.4**	mg/Kg	0.52	0.21	5	08/27/24 10:10	08/19/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2412724-03		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**0.9**	**J**	mg/Kg	2.0	0.6	5	08/27/24 09:55	08/19/24	
Arsenic	200.8	ND	U	mg/Kg	0.5	0.06	5	08/27/24 09:55	08/19/24	
Cadmium	200.8	ND	U	mg/Kg	0.020	0.007	5	08/27/24 09:55	08/19/24	
Chromium	200.8	ND	U	mg/Kg	0.20	0.06	5	08/27/24 09:55	08/19/24	
Copper	200.8	ND	U	mg/Kg	0.10	0.04	5	08/27/24 09:55	08/19/24	
Lead	200.8	ND	U	mg/Kg	0.05	0.020	5	08/27/24 09:55	08/19/24	
Nickel	200.8	ND	U	mg/Kg	0.20	0.03	5	08/27/24 09:55	08/19/24	
Selenium	200.8	ND	U	mg/Kg	1.0	0.09	5	08/27/24 09:55	08/19/24	
Silver	200.8	ND	U	mg/Kg	0.020	0.004	5	08/27/24 09:55	08/19/24	
Zinc	200.8	**0.35**	**J**	mg/Kg	0.5	0.20	5	08/27/24 09:55	08/19/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2412723-03		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7471B	ND U	mg/Kg	0.02	0.002	1	08/22/24 08:09	08/21/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/27/24

Replicate Sample Summary
Total Metals

Sample Name:	2024KGMLJCS1	**Units:**	mg/Kg
Lab Code:	K2408463-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2412724-01 Result	Average	RPD	RPD Limit
Aluminum	200.8	2.8	0.8	13100	11700	12400	11	30
Arsenic	200.8	0.71	0.08	17.5	18.3	17.9	4	30
Cadmium	200.8	0.028	0.010	0.166	0.153	0.160	9	30
Chromium	200.8	0.28	0.08	30.1	22.4	26.3	29	30
Copper	200.8	0.14	0.06	71.6	53.1	62.4	30	30
Lead	200.8	0.071	0.028	10.1	7.98	9.04	23	30
Nickel	200.8	0.28	0.04	23.0	18.6	20.8	21	30
Selenium	200.8	1.4	0.1	0.3 J	0.3 J	0.3	<1	30
Silver	200.8	0.028	0.006	0.353	0.208	0.281	52 *	30
Zinc	200.8	0.71	0.28	93.7	84.2	89.0	11	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/22/24

Replicate Sample Summary
Total Metals

Sample Name:	2024KGMLJCS1	**Units:**	mg/Kg
Lab Code:	K2408463-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2412723-01 Result	Average	RPD	RPD Limit
Mercury	7471B	0.019	0.002	0.026	0.022	0.024	12	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/27/24
		Date Extracted:	08/19/24

Matrix Spike Summary
Total Metals

Sample Name:	2024KGMLJCS1	**Units:**	mg/Kg
Lab Code:	K2408463-001	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2412724-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	13100	12000	528	-209 #	70-130
Arsenic	17.5	147	132	98	70-130
Cadmium	0.166	13.1	13.2	98	70-130
Chromium	30.1	72.1	52.8	79	70-130
Copper	71.6	130	66.0	89	70-130
Lead	10.1	144	132	101	70-130
Nickel	23.0	146	132	93	70-130
Selenium	0.3 J	129	132	98	70-130
Silver	0.353	12.2	13.2	90	70-130
Zinc	93.7	210	132	88	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Collected:**	08/09/24
Sample Matrix:	Soil	**Date Received:**	08/15/24
		Date Analyzed:	08/22/24
		Date Extracted:	08/21/24

Matrix Spike Summary
Total Metals

Sample Name:	2024KGMLJCS1	**Units:**	mg/Kg
Lab Code:	K2408463-001	**Basis:**	Dry
Analysis Method:	7471B		
Prep Method:	Method		

Matrix Spike
KQ2412723-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Mercury	0.026	0.458	0.460	94	80-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Alaska Department of Fish and Game
Project: 2024 Kensington Biomonitoring
Sample Matrix: Soil

Service Request: K2408463
Date Analyzed: 08/27/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2412724-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	200.8	411	400	103	85-115
Arsenic	200.8	103	100	103	85-115
Cadmium	200.8	10.8	10.0	108	85-115
Chromium	200.8	41.8	40.0	104	85-115
Copper	200.8	51.5	50.0	103	85-115
Lead	200.8	109	100	109	85-115
Nickel	200.8	105	100	105	85-115
Selenium	200.8	104	100	104	85-115
Silver	200.8	10.4	10.0	104	85-115
Zinc	200.8	99.1	100	99	85-115

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2408463
Project:	2024 Kensington Biomonitoring	**Date Analyzed:**	08/22/24
Sample Matrix:	Soil		

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2412723-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7471B	0.468	0.500	94	80-120

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring
Sample Matrix: Soil

Metals

Prep Method: EPA 3050B **Extraction Lot:** 443272
Analytical Method: 200.8 **Extraction Date:** 08/19/24 12:45

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024KGMLJCS1	K2408463-001	8/9/24	8/15/24	1.016 g	100 mL	
2024KGMLJCS2	K2408463-002	8/9/24	8/15/24	1.265 g	100 mL	
2024KGMLJCS3	K2408463-003	8/9/24	8/15/24	1.306 g	100 mL	
Duplicate	KQ2412724-01DUP	8/9/24	8/15/24	1.006 g	100 mL	
Matrix Spike	KQ2412724-02MS	8/9/24	8/15/24	1.079 g	100 mL	
Method Blank	KQ2412724-03MB	NA	NA	1 g	100 mL	
Lab Control Sample	KQ2412724-04LCS	NA	NA	1 g	100 mL	

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring
Sample Matrix: Soil

Metals

Prep Method: Method **Extraction Lot:** 443271
Analytical Method: 7471B **Extraction Date:** 08/21/24 09:45

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024KGMLJCS1	K2408463-001	8/9/24	8/15/24	0.759 g	50 mL	
2024KGMLJCS2	K2408463-002	8/9/24	8/15/24	0.645 g	50 mL	
2024KGMLJCS3	K2408463-003	8/9/24	8/15/24	0.774 g	50 mL	
Duplicate	KQ2412723-01DUP	8/9/24	8/15/24	0.764 g	50 mL	
Matrix Spike	KQ2412723-02MS	8/9/24	8/15/24	0.775 g	50 mL	
Method Blank	KQ2412723-03MB	NA	NA	0.5 g	50 mL	
Lab Control Sample	KQ2412723-04LCS	NA	NA	0.5 g	50 mL	

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 08/22/24 07:26						
Mercury	7471B	851547	4.67	5.00	93	90-110
CCV 08/22/24 07:31						
Mercury	7471B	851547	4.76	5.00	95	90-110
CCV 08/22/24 07:50						
Mercury	7471B	851547	4.78	5.00	96	90-110
CCV 08/22/24 08:14						
Mercury	7471B	851547	4.74	5.00	95	90-110
CCV 08/22/24 08:37						
Mercury	7471B	851547	5.09	5.00	102	90-110
CCV 08/22/24 08:58						
Mercury	7471B	851547	4.74	5.00	95	90-110
ICV 08/27/24 09:33						
Aluminum	200.8	852042	103	100	103	90-110
Arsenic	200.8	852042	25.9	25.0	104	90-110
Cadmium	200.8	852042	13.1	12.5	105	90-110
Chromium	200.8	852042	10.2	10.0	102	90-110
Copper	200.8	852042	13.0	12.5	104	90-110
Lead	200.8	852042	25.1	25.0	100	90-110
Nickel	200.8	852042	26.5	25.0	106	90-110
Selenium	200.8	852042	25.0	25.0	100	90-110
Silver	200.8	852042	12.3	12.5	99	90-110
Zinc	200.8	852042	26.0	25.0	104	90-110
CCV 08/27/24 09:36						
Aluminum	200.8	852042	249	250	100	90-110
Arsenic	200.8	852042	25.1	25.0	100	90-110
Cadmium	200.8	852042	25.1	25.0	100	90-110
Chromium	200.8	852042	25.0	25.0	100	90-110
Copper	200.8	852042	24.7	25.0	99	90-110
Lead	200.8	852042	24.8	25.0	99	90-110
Nickel	200.8	852042	24.9	25.0	100	90-110
Selenium	200.8	852042	25.6	25.0	103	90-110
Silver	200.8	852042	12.6	12.5	101	90-110
Zinc	200.8	852042	25.0	25.0	100	90-110
CCV 08/27/24 10:20						
Aluminum	200.8	852042	249	250	99	90-110
Arsenic	200.8	852042	25.4	25.0	102	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/27/24 10:20						
Cadmium	200.8	852042	24.8	25.0	99	90-110
Chromium	200.8	852042	25.3	25.0	101	90-110
Copper	200.8	852042	25.4	25.0	102	90-110
Lead	200.8	852042	25.3	25.0	101	90-110
Nickel	200.8	852042	25.6	25.0	102	90-110
Selenium	200.8	852042	25.5	25.0	102	90-110
Silver	200.8	852042	12.5	12.5	100	90-110
Zinc	200.8	852042	25.3	25.0	101	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
ICB 08/22/24 07:27				
Mercury	7471B	851547	0.02	U
CCB 08/22/24 07:32				
Mercury	7471B	851547	0.02	U
CCB 08/22/24 07:52				
Mercury	7471B	851547	0.02	U
CCB 08/22/24 08:16				
Mercury	7471B	851547	0.02	U
CCB 08/22/24 08:39				
Mercury	7471B	851547	0.02	U
CCB 08/22/24 08:59				
Mercury	7471B	851547	0.02	U
ICB 08/27/24 09:39				
Aluminum	200.8	852042	1.2	U
Arsenic	200.8	852042	0.1	U
Cadmium	200.8	852042	0.014	U
Chromium	200.8	852042	0.12	U
Copper	200.8	852042	0.08	U
Lead	200.8	852042	0.04	U
Nickel	200.8	852042	0.06	U
Selenium	200.8	852042	0.2	U
Silver	200.8	852042	0.008	U
Zinc	200.8	852042	0.4	U
CCB 08/27/24 09:41				
Aluminum	200.8	852042	1.2	U
Arsenic	200.8	852042	0.1	U
Cadmium	200.8	852042	0.014	U
Chromium	200.8	852042	0.12	U
Copper	200.8	852042	0.08	U
Lead	200.8	852042	0.04	U
Nickel	200.8	852042	0.06	U
Selenium	200.8	852042	0.2	U
Silver	200.8	852042	0.008	U
Zinc	200.8	852042	0.4	U
CCB 08/27/24 10:22				
Aluminum	200.8	852042	1.2	U
Arsenic	200.8	852042	0.1	U

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 08/27/24 10:22				
Cadmium	200.8	852042	0.014	U
Chromium	200.8	852042	0.12	U
Copper	200.8	852042	0.08	U
Lead	200.8	852042	0.04	U
Nickel	200.8	852042	0.06	U
Selenium	200.8	852042	0.2	U
Silver	200.8	852042	0.008	U
Zinc	200.8	852042	0.4	U

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV							
Mercury	7471B	851547	0.21	0.2	104	50-150	08/22/24 07:29
LLICVS							
Aluminum	200.8	852042	3.9	4.0	98	50-199	08/27/24 09:44
Arsenic	200.8	852042	0.53	0.5	107	50-199	08/27/24 09:44
Cadmium	200.8	852042	0.046	0.04	115	50-199	08/27/24 09:44
Chromium	200.8	852042	0.45	0.4	112	50-199	08/27/24 09:44
Copper	200.8	852042	0.21	0.2	105	50-199	08/27/24 09:44
Lead	200.8	852042	0.10	0.1	100	50-199	08/27/24 09:44
Nickel	200.8	852042	0.44	0.4	110	50-199	08/27/24 09:44
Selenium	200.8	852042	1.0	1.0	103	50-199	08/27/24 09:44
Silver	200.8	852042	0.040	0.04	100	50-199	08/27/24 09:44
Zinc	200.8	852042	1.1	1.0	108	50-199	08/27/24 09:44

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring

POST SPIKE SAMPLE RECOVERY

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2408463-001A								
Mercury	7471B	851547	0.28	5.43	5.00	103	80-120	08/22/24 08:34

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring/

Detection Limits

Instrument: K-CVAA-04 **Matrix:** Soil

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Mercury	253	ug/L	0.2	0.02	7471B

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring/

Detection Limits

Instrument: K-ICP-MS-05 **Matrix:** Soil

Analyte	Mass	Units	MRL	MDL	Method
Aluminum	27	ug/L	4	1.2	200.8
Arsenic	75	ug/L	1	0.12	200.8
Cadmium	111	ug/L	0.04	0.014	200.8
Chromium	52	ug/L	0.4	0.12	200.8
Copper	65	ug/L	0.2	0.08	200.8
Lead	208	ug/L	0.1	0.04	200.8
Nickel	60	ug/L	0.4	0.06	200.8
Selenium	78	ug/L	2	0.18	200.8
Silver	107	ug/L	0.04	0.008	200.8
Zinc	66	ug/L	1	0.4	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring/

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-05

Analyte	Concentration (ug/L)	Method
Aluminum 27	45000	200.8
Arsenic 75	3600	200.8
Cadmium 111	3600	200.8
Chromium 52	3600	200.8
Copper 65	3600	200.8
Lead 208	3600	200.8
Nickel 60	3600	200.8
Selenium 78	3600	200.8
Silver 107	180	200.8
Zinc 66	3600	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **851547**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	08/22/24 07:16	
ZZZZZZ	1	08/22/24 07:18	
ZZZZZZ	1	08/22/24 07:19	
ZZZZZZ	1	08/22/24 07:21	
ZZZZZZ	1	08/22/24 07:22	
ZZZZZZ	1	08/22/24 07:24	
ICV1	1	08/22/24 07:26	X
ICB1	1	08/22/24 07:27	X
LLICV1	1	08/22/24 07:29	X
CCV1	1	08/22/24 07:31	X
CCB1	1	08/22/24 07:32	X
ZZZZZZ	1	08/22/24 07:34	
ZZZZZZ	1	08/22/24 07:35	
ZZZZZZ	1	08/22/24 07:37	
ZZZZZZ	1	08/22/24 07:39	
ZZZZZZ	1	08/22/24 07:40	
ZZZZZZ	1	08/22/24 07:42	
ZZZZZZ	1	08/22/24 07:43	
ZZZZZZ	1	08/22/24 07:45	
ZZZZZZ	1	08/22/24 07:47	
ZZZZZZ	1	08/22/24 07:48	
CCV2	1	08/22/24 07:50	X
CCB2	1	08/22/24 07:52	X
ZZZZZZ	1	08/22/24 07:53	
ZZZZZZ	1	08/22/24 07:59	
ZZZZZZ	1	08/22/24 08:01	
ZZZZZZ	1	08/22/24 08:03	
ZZZZZZ	1	08/22/24 08:04	
ZZZZZZ	1	08/22/24 08:06	
ZZZZZZ	1	08/22/24 08:08	
KQ2412723-03MB	1	08/22/24 08:09	X
KQ2412723-04LCS	1	08/22/24 08:11	X
ZZZZZZ	1	08/22/24 08:12	
CCV3	1	08/22/24 08:14	X
CCB3	1	08/22/24 08:16	X
ZZZZZZ	1	08/22/24 08:17	
ZZZZZZ	1	08/22/24 08:19	

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **851547**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	08/22/24 08:21	
ZZZZZZ	1	08/22/24 08:22	
ZZZZZZ	1	08/22/24 08:24	
K2408463-001	1	08/22/24 08:25	X
K2408463-001DUP	1	08/22/24 08:27	X
K2408463-001MS	1	08/22/24 08:29	X
K2408463-001PS	1	08/22/24 08:34	X
K2408463-002	1	08/22/24 08:36	X
CCV4	1	08/22/24 08:37	X
CCB4	1	08/22/24 08:39	X
K2408463-003	1	08/22/24 08:41	X
ZZZZZZ	1	08/22/24 08:42	
ZZZZZZ	1	08/22/24 08:44	
ZZZZZZ	1	08/22/24 08:45	
ZZZZZZ	1	08/22/24 08:47	
ZZZZZZ	1	08/22/24 08:49	
ZZZZZZ	1	08/22/24 08:50	
ZZZZZZ	1	08/22/24 08:53	
ZZZZZZ	1	08/22/24 08:55	
ZZZZZZ	1	08/22/24 08:56	
CCV5	1	08/22/24 08:58	X
CCB5	1	08/22/24 08:59	X
ZZZZZZ	1	08/22/24 09:01	
ZZZZZZ	1	08/22/24 09:03	
ZZZZZZ	1	08/22/24 09:04	
ZZZZZZ	1	08/22/24 09:10	
ZZZZZZ	1	08/22/24 09:12	
ZZZZZZ	1	08/22/24 09:16	
ZZZZZZ	1	08/22/24 09:18	
ZZZZZZ	1	08/22/24 09:22	
ZZZZZZ	1	08/22/24 09:28	
ZZZZZZ	1	08/22/24 09:30	
ZZZZZZ	1	08/22/24 09:32	
ZZZZZZ	1	08/22/24 09:33	
ZZZZZZ	1	08/22/24 09:37	
ZZZZZZ	1	08/22/24 09:38	
ZZZZZZ	20	08/22/24 09:40	

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **852042**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Ni	Se	Ag	Zn
ZZZZZZ	1	08/27/24 09:28										
ZZZZZZ	1	08/27/24 09:31										
ICV	1	08/27/24 09:33	X	X	X	X	X	X	X	X	X	X
CCV	1	08/27/24 09:36	X	X	X	X	X	X	X	X	X	X
ICB	1	08/27/24 09:39	X	X	X	X	X	X	X	X	X	X
CCB	1	08/27/24 09:41	X	X	X	X	X	X	X	X	X	X
LLICVS	1	08/27/24 09:44	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	08/27/24 09:46										
KQ2412724-03MB	5	08/27/24 09:55	X	X	X	X	X	X	X	X	X	X
KQ2412724-04LCS	20	08/27/24 09:57	X	X	X	X	X	X	X	X	X	X
K2408463-001	5	08/27/24 10:00	X	X	X	X	X	X	X	X	X	X
K2408463-001DUP	5	08/27/24 10:02	X	X	X	X	X	X	X	X	X	X
K2408463-001MS	5	08/27/24 10:05	X	X	X	X	X	X	X	X	X	X
K2408463-002	5	08/27/24 10:07	X	X	X	X	X	X	X	X	X	X
K2408463-003	5	08/27/24 10:10	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	08/27/24 10:13										
CCV	1	08/27/24 10:20	X	X	X	X	X	X	X	X	X	X
CCB	1	08/27/24 10:22	X	X	X	X	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2408463
Project: 2024 Kensington Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **852042**

Sample	Date/Time	Li6NG	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	08/27/24 09:28					
ZZZZZZ	08/27/24 09:31					
ICV	08/27/24 09:33	100	104	104	105	103
CCV	08/27/24 09:36	101	104	106	102	102
ICB	08/27/24 09:39	102	103	101	103	101
CCB	08/27/24 09:41	102	101	102	103	100
LLICVS	08/27/24 09:44	108	103	102	102	100
ZZZZZZ	08/27/24 09:46					
KQ2412724-03MB	08/27/24 09:55	106	101	104	105	102
KQ2412724-04LCS	08/27/24 09:57	104	104	105	102	101
K2408463-001	08/27/24 10:00	104	104	91	90	91
K2408463-001DUP	08/27/24 10:02	95	100	100	101	99
K2408463-001MS	08/27/24 10:05	92	98	95	97	97
K2408463-002	08/27/24 10:07	91	96	94	94	96
K2408463-003	08/27/24 10:10	91	97	94	96	97
ZZZZZZ	08/27/24 10:13					
CCV	08/27/24 10:20	94	96	93	95	95
CCB	08/27/24 10:22	90	125	89	92	92

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Benchsheet

Service Request #:	**T2401387, K2408463, KQ2412722**	**Run #:**	**850793**
Test:	**TS-Air Dried**	**Balance ID:**	**K-BALANCE-49**
Method:	**160.3 Modified**		

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Misc. Solid	T2401387-001	1.269	2.123	3.346	2.08	97.8	
Misc. Solid	T2401387-002	1.265	2.041	3.252	1.99	97.4	
Soil	K2408463-001	1.268	10.836	8.872	7.60	70.2	
Soil	K2408463-002	1.268	10.778	8.790	7.52	69.8	
Soil	K2408463-003	1.271	11.561	9.760	8.49	73.4	
Soil	K2408463-003DUP	1.271	10.038	8.434	7.16	71.4	3

	Oven ID	Temp In	Temp Out	Date In	Time In	Date Out	Time Out	Thermometer ID
Oven1	**K-OVEN-07**	**105**	**105**	**8/15/2024**	**14:00**	**8/16/2024**	**05:30**	

	Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time
Calibration1	**K-BALANCE-49**	**1.000, 100.000**	**1.0001, 100.000**	**8/15/2024**	**13:30**	**8/15/2024**	**14:00**
Calibration2	**K-BALANCE-55**	**1.000/100.000**	**1.000/100.000**	**8/16/2024**	**06:00**	**8/16/2024**	**06:01**

Comments: SN1011/PDP VOLUMINOUS SAMPLE REDUCED WEIGHT FINISHED BY TR SN11010 REVIEWED BY ZZB 8/16/2024

Analytical Results Summary

Instrument Name: K-Balance-61 **Analyst:** PPRICE **Analysis Lot:** 850817 **Method/Testcode:** 160.4 Modified/TVS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2408463-001	Solids, Total Volatile	N/A		Soil	2.00 Percent	10 g	2.00 Percent	1		0.10			8/15/24 14:30:00	N	IV
K2408463-002	Solids, Total Volatile	N/A		Soil	1.80 Percent	10 g	1.80 Percent	1		0.10			8/15/24 14:30:00	N	IV
K2408463-003	Solids, Total Volatile	N/A		Soil	2.10 Percent	10 g	2.10 Percent	1		0.10			8/15/24 14:30:00	N	IV
KQ2412730-01	Solids, Total Volatile	MB		Soil	0.00 Percent	10 g	0.10 Percent U	1		0.10			8/15/24 14:30:00	N	IV
KQ2412730-02	Solids, Total Volatile	DUP	K2408463-001	Soil	2.10 Percent	10 g	2.10 Percent	1		0.10		5	8/15/24 14:30:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2408463 Method: TVS

Run: 850817

Analysis: Total Solids / Volatile Solids Matrix: SOIL

Sample Number		MB	8463-1	8463-1DUP	8463-2	8463-3	
Crucible Number		TURN	GADGET	STAN	POLE	BOMBER	
SampleWeight		50.7452	25.7210	25.9126	25.4077	25.6742	
Tare Weight	8/15/2024	72.5831	70.0294	63.7172	63.0152	69.5264	
Tare + Dry Wt. (1)	8/19/2024	72.5821	89.0912	82.7910	81.9475	87.2317	
Tare + Dry Wt. (2)	8/19/2024	72.5775	89.0613	82.7651	81.9231	87.2021	
Tare + Ash Wt. (1)	8/19/2024	72.5750	88.7050	82.4050	81.6260	86.8840	
Tare + Ash Wt. (2)	8/19/2024	72.5685	88.6727	82.3688	81.5878	86.8343	
Total Solids		0.0%	74.0%	73.5%	74.4%	68.8%	#DIV/0!
Volatile Solids		-160.7%	2.0%	2.1%	1.8%	2.1%	#DIV/0!

Sample Number							
Crucible Number							
Sample Weight							
Tare Weight	Date:						
Tare + Dry Wt. (1)							
Tare + Dry Wt. (2)							
Tare + Ash Wt. (1)							
Tare + Ash Wt. (2)							
Total Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Volatile Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	PDP	Date:	8/15/2024 14.30.00
Reviewed By:		Date:	

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: K2408463 Method: TVS

Run: 850817

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	14.30.00	8/15/2024	09.00.00	8/19/2024
105	09.20.00	8/19/2024	10.30.00	8/19/2024
550	11.00.00	8/19/2024	13.30.00	8/19/2024
550	14.00.00	8/19/2024	15.00.00	8/19/2024

Analyzed By:	PDP	Date Analyzed:	8/15/2024
Reviewed By:		Date Reviewed:	

Reviewed by JW 12/11/18

K2408463, TVS, PDP, 8-15-24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2408463 Method: TVS

Run: 850817

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	199.9998	100.0%	CCV1	9.9995	100.0%	8/15/2024
CCV2	200.0000	100.0%	CCV2	9.9999	100.0%	8/15/2024
CCV3	200.0000	100.0%	CCV3	9.9997	100.0%	8/19/2024
CCV4	200.0000	100.0%	CCV4	9.9995	100.0%	8/19/2024
CCV5	200.0000	100.0%	CCV5	9.9999	100.0%	8/19/2024
CCV6	200.0001	100.0%	CCV6	10.0000	100.0%	8/19/2024
CCV7	200.0003	100.0%	CCV7	9.9994	100.0%	8/19/2024
CCV8	200.0000	100.0%	CCV8	9.9999	100.0%	8/19/2024
CCV9	199.9999	100.0%	CCV9	10.0001	100.0%	8/19/2024
CCV10	199.9997	100.0%	CCV10	10.0000	100.0%	8/19/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	PDP	Date Analyzed:	8/15/2024
Reviewed By:		Date Reviewed:	

Reviewed by JW 12/11/18

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Work Request # K2408358, 8463, 8529, 8851

Date Analyzed: 9/6/24

Analyst: ZH

Run # 853331

Analysis: ASTM D422M CB

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/(NA)
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/(NA)
9.	Are results for methods blanks all ND?	yes/no/(NA)
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	(yes)/no/NA
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the bench sheet crossed out?	yes/no/(NA)
17.	Was analysis turned in by the data due date? (If not record SR#)	yes/(no)/NA

COMMENTS:
K2408358-4, 8529-6 were non homogeneous in water
ZH 9/18/24 ~~K2408358~~.
K2408529-2 was very low in total solids, and mostly organic
K2408851-1 contained organic materials

Secondary Approved by: _____ Date: 09/19/24

DQREPORT

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408358
Lab Code #: K2408358-001
Sample Name: ZAF-030

Client: Battelle Memorial Institute
Project: Pickle Pond/G32171.X5.X1.0013.00
Sample Matrix: Sediment

Date Collected: 8/9/2024
Date Received: 8/13/2024
Date Analyzed: 9/6/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.1523
Gravel 2.00 mm (g)	10	0.8005
Gravel 0.850 mm (g)	20	0.6783
Gravel 0.425 mm (g)	40	1.6132
Gravel 0.250 mm (g)	60	8.6328
Gravel 0.106 mm (g)	140	5.1759
Gravel 0.075 mm (g)	200	0.1788
S/C <0.075 mm (g)	Pan	0.2958
Total (g) Recov'd	17.5276	
Total (%) Recov'd	99.4	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	138.1552
Grams Beaker (Tare)	120.5194
Grams Gravel/Sand	17.6358

I. Sample Preparation

Grams As Received Sample	31.9970
Percent (%) Solids	61.5
Grams Oven Dried Sample	19.6782

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID# C65669

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	41.5295	28.7392
Grams of Tare	41.4670	28.7083
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0605	0.0289
Total Grams Sample X 50	3.0250	1.4450

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-E

Analyst: ZH Date: 9/17/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408358
Lab Code #: K2408358-002
Sample Name: ZAF-031

Client: Battelle Memorial Institute
Project: Pickle Pond/G32171.X5.X1.0013.00
Sample Matrix: Sediment

Date Collected: 8/9/2024
Date Received: 8/13/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.3637
Gravel 2.00 mm (g)	10	0.5133
Gravel 0.850 mm (g)	20	0.5014
Gravel 0.425 mm (g)	40	0.7690
Gravel 0.250 mm (g)	60	3.5484
Gravel 0.106 mm (g)	140	3.5695
Gravel 0.075 mm (g)	200	0.1124
S/C <0.075 mm (g)	Pan	0.1277
Total (g) Recov'd	9.5054	
Total (%) Recov'd	99.7	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	121.0195
Grams Beaker (Tare)	111.4869
Grams Gravel/Sand	9.5326

I. Sample Preparation

Grams As Received Sample	36.4373
Percent (%) Solids	33.8
Grams Oven Dried Sample	12.3158

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	29.7885	42.1685
Grams of Tare	29.6969	42.1178
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0896	0.0487
Total Grams Sample X 50	4.4800	2.4350

Analyst: _____ Date: 9/17/2024
Reviewed by: _____ Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408358
Lab Code #: K2408358-002DUP
Sample Name: ZAF-031

Client: Battelle Memorial Institute
Project: Pickle Pond/G32171.X5.X1.0013.00
Sample Matrix: Sediment

Date Collected: 8/9/2024
Date Received: 8/13/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.5696
Gravel 2.00 mm (g)	10	1.2240
Gravel 0.850 mm (g)	20	0.9315
Gravel 0.425 mm (g)	40	1.0215
Gravel 0.250 mm (g)	60	3.0551
Gravel 0.106 mm (g)	140	2.7569
Gravel 0.075 mm (g)	200	0.1133
S/C <0.075 mm (g)	Pan	0.2332
Total (g) Recov'd		9.9051
Total (%) Recov'd		99.5

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	115.1644
Grams Beaker (Tare)	105.2078
Grams Gravel/Sand	9.9566

I. Sample Preparation

Grams As Received Sample	31.0890
Percent (%) Solids	33.8
Grams Oven Dried Sample	10.5081

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.9412	28.6186
Grams of Tare	27.8963	28.5944
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0429	0.0222
Total Grams Sample X 50	2.1450	1.1100

Analyst: [signature] Date: 9/17/2024
Reviewed by: [signature] Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408358
Lab Code #: K2408358-003
Sample Name: ZAF-032

Client: Battelle Memorial Institute
Project: Pickle Pond/G32171.X5.X1.0013.00
Sample Matrix: Sediment

Date Collected: 8/10/2024
Date Received: 8/13/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.2451
Gravel 0.850 mm (g)	20	0.7882
Gravel 0.425 mm (g)	40	1.1859
Gravel 0.250 mm (g)	60	1.4714
Gravel 0.106 mm (g)	140	0.9268
Gravel 0.075 mm (g)	200	0.2663
S/C <0.075 mm (g)	Pan	1.0612
Total (g) Recov'd		5.9449
Total (%) Recov'd		99.1

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	118.4062
Grams Beaker (Tare)	112.4055
Grams Gravel/Sand	6.0007

I. Sample Preparation

Grams As Received Sample	31.2430
Percent (%) Solids	29.2
Grams Oven Dried Sample	9.1230

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.3462	33.8973
Grams of Tare	28.2597	33.8596
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0845	0.0357
Total Grams Sample X 50	4.2250	1.7850

Analyst: [signature] Date: 9/17/2024
Reviewed by: [signature] Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408358
Lab Code #: K2408358-004
Sample Name: ZAF-033

Client: Battelle Memorial Institute
Project: Pickle Pond/G32171.X5.X1.0013.00
Sample Matrix: Sediment

Date Collected: 8/10/2024
Date Received: 8/13/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0288
Gravel 2.00 mm (g)	10	0.0796
Gravel 0.850 mm (g)	20	0.3448
Gravel 0.425 mm (g)	40	3.0034
Gravel 0.250 mm (g)	60	11.4919
Gravel 0.106 mm (g)	140	1.7093
Gravel 0.075 mm (g)	200	0.1135
S/C <0.075 mm (g)	Pan	0.0763
Total (g) Recov'd	16.8476	
Total (%) Recov'd	99.6	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	129.5475
Grams Beaker (Tare)	112.6323
Grams Gravel/Sand	16.9152

I. Sample Preparation

Grams As Received Sample	30.9940
Percent (%) Solids	69.1
Grams Oven Dried Sample	21.4169

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	34.6951	28.8602
Grams of Tare	34.6555	28.8402
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0376	0.0180
Total Grams Sample X 50	1.8800	0.9000

Analyst: _____ Date: 9/17/2024
Reviewed by: _____ Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408358
Lab Code #: K2408358-005
Sample Name: ZAF-034

Client: Battelle Memorial Institute
Project: Pickle Pond/G32171.X5.X1.0013.00
Sample Matrix: Sediment

Date Collected: 8/10/2024
Date Received: 8/13/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0619
Gravel 2.00 mm (g)	10	0.6696
Gravel 0.850 mm (g)	20	0.7344
Gravel 0.425 mm (g)	40	0.6821
Gravel 0.250 mm (g)	60	1.0453
Gravel 0.106 mm (g)	140	1.3383
Gravel 0.075 mm (g)	200	0.3994
S/C <0.075 mm (g)	Pan	0.7904
Total (g) Recov'd	5.7214
Total (%) Recov'd	99.0

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	129.7200
Grams Beaker (Tare)	123.9411
Grams Gravel/Sand	5.7789

I. Sample Preparation

Grams As Received Sample	30.6350
Percent (%) Solids	25.6
Grams Oven Dried Sample	7.8426

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	40.3218	39.6251
Grams of Tare	40.2531	39.6056
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0667	0.0175
Total Grams Sample X 50	3.3350	0.8750

Analyst: [signature] Date: 9/17/2024
Reviewed by: [signature] Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408358
Lab Code #: K2408358-006
Sample Name: ZAF-035

Client: Battelle Memorial Institute
Project: Pickle Pond/G32171.X5.X1.0013.00
Sample Matrix: Sediment

Date Collected: 8/10/2024
Date Received: 8/13/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.7937
Gravel 0.850 mm (g)	20	2.0566
Gravel 0.425 mm (g)	40	1.8276
Gravel 0.250 mm (g)	60	1.2330
Gravel 0.106 mm (g)	140	1.5206
Gravel 0.075 mm (g)	200	0.5012
S/C <0.075 mm (g)	Pan	3.8615
Total (g) Recov'd	11.7942
Total (%) Recov'd	98.2

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	132.2174
Grams Beaker (Tare)	120.2083
Grams Gravel/Sand	12.0091

I. Sample Preparation

Grams As Received Sample	31.3140
Percent (%) Solids	42.6
Grams Oven Dried Sample	13.3398

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.0118	29.3659
Grams of Tare	27.8955	29.3367
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.1143	0.0272
Total Grams Sample X 50	5.7150	1.3600

Analyst: _____ Date: 9/17/2024
Reviewed by: _____ Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408463
Lab Code #: K2408463-001
Sample Name: 2024KGMLJCS1

Client: Alaska Department of Fish and Game
Project: 2024 Kensington Biomonitoring
Sample Matrix: Soil

Date Collected: 8/9/2024
Date Received: 8/15/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	2.8504
Gravel 2.00 mm (g)	10	2.4538
Gravel 0.850 mm (g)	20	2.5193
Gravel 0.425 mm (g)	40	3.6051
Gravel 0.250 mm (g)	60	5.8052
Gravel 0.106 mm (g)	140	6.7955
Gravel 0.075 mm (g)	200	0.6935
S/C <0.075 mm (g)	Pan	0.0906
Total (g) Recov'd	24.8134	
Total (%) Recov'd	99.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	136.8592
Grams Beaker (Tare)	111.9912
Grams Gravel/Sand	24.8680

I. Sample Preparation

Grams As Received Sample	38.1080
Percent (%) Solids	70.2
Grams Oven Dried Sample	26.7518

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 AM

Thermometer ID# C65669

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	35.2396	42.5484
Grams of Tare	35.2201	42.5455
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0175	0.0009
Total Grams Sample X 50	0.8750	0.0450

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-E

Analyst: ZH Date: 9/16/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408463
Lab Code #: K2408463-002
Sample Name: 2024KGMLJCS2

Client: Alaska Department of Fish and Game
Project: 2024 Kensington Biomonitoring
Sample Matrix: Soil

Date Collected: 8/9/2024
Date Received: 8/15/2024
Date Analyzed: 9/6/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.3724
Gravel 2.00 mm (g)	10	2.3764
Gravel 0.850 mm (g)	20	8.8984
Gravel 0.425 mm (g)	40	8.2035
Gravel 0.250 mm (g)	60	3.5071
Gravel 0.106 mm (g)	140	1.0752
Gravel 0.075 mm (g)	200	0.0604
S/C <0.075 mm (g)	Pan	0.0248
Total (g) Recov'd	24.5182	
Total (%) Recov'd	99.7	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	135.8226
Grams Beaker (Tare)	111.2415
Grams Gravel/Sand	24.5811

I. Sample Preparation

Grams As Received Sample	33.7340
Percent (%) Solids	69.8
Grams Oven Dried Sample	23.5463

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 AM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.3926	31.3414
Grams of Tare	28.3880	31.3382
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0026	0.0012
Total Grams Sample X 50	0.1300	0.0600

Analyst: 0 Date: 9/16/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408463
Lab Code #: K2408463-003
Sample Name: 2024KGMLJCS3

Client: Alaska Department of Fish and Game
Project: 2024 Kensington Biomonitoring
Sample Matrix: Soil

Date Collected: 8/9/2024
Date Received: 8/15/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.5995
Gravel 0.850 mm (g)	20	1.4953
Gravel 0.425 mm (g)	40	2.8967
Gravel 0.250 mm (g)	60	6.1397
Gravel 0.106 mm (g)	140	10.7817
Gravel 0.075 mm (g)	200	1.5831
S/C <0.075 mm (g)	Pan	0.3003
Total (g) Recov'd	23.7963
Total (%) Recov'd	99.7

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	138.7677
Grams Beaker (Tare)	114.8942
Grams Gravel/Sand	23.8735

I. Sample Preparation

Grams As Received Sample	37.4560
Percent (%) Solids	73.4
Grams Oven Dried Sample	27.4927

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 AM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.5564	33.5822
Grams of Tare	27.5241	33.5786
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0303	0.0016
Total Grams Sample X 50	1.5150	0.0800

Analyst: 0 Date: 9/16/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408529
Lab Code #: K2408529-001
Sample Name: ZAM-001

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/12/2024
Date Received: 8/16/2024
Date Analyzed: 9/6/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.2420
Gravel 2.00 mm (g)	10	0.5584
Gravel 0.850 mm (g)	20	0.5596
Gravel 0.425 mm (g)	40	0.6449
Gravel 0.250 mm (g)	60	0.8841
Gravel 0.106 mm (g)	140	2.0721
Gravel 0.075 mm (g)	200	0.6907
S/C <0.075 mm (g)	Pan	0.2770
Total (g) Recov'd	5.9288	
Total (%) Recov'd	98.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	112.3092
Grams Beaker (Tare)	106.3091
Grams Gravel/Sand	6.0001

I. Sample Preparation

Grams As Received Sample	35.7650
Percent (%) Solids	28.3
Grams Oven Dried Sample	10.1215

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID# C65669

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	6.0765	27.3589
Grams of Tare	5.9906	27.3529
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0839	0.0040
Total Grams Sample X 50	4.1950	0.2000

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-E

Analyst: ZH Date: 9/17/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408529
Lab Code #: K2408529-002
Sample Name: ZAM-002

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/12/2024
Date Received: 8/16/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.1539
Gravel 2.00 mm (g)	10	0.2077
Gravel 0.850 mm (g)	20	0.6755
Gravel 0.425 mm (g)	40	0.8929
Gravel 0.250 mm (g)	60	0.6706
Gravel 0.106 mm (g)	140	0.9287
Gravel 0.075 mm (g)	200	0.2759
S/C <0.075 mm (g)	Pan	0.2223
Total (g) Recov'd	4.0275
Total (%) Recov'd	98.3

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	122.5876
Grams Beaker (Tare)	118.4925
Grams Gravel/Sand	4.0951

I. Sample Preparation

Grams As Received Sample	30.1040
Percent (%) Solids	19.8
Grams Oven Dried Sample	5.9606

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	26.9985	29.2502
Grams of Tare	26.9668	29.2466
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0297	0.0016
Total Grams Sample X 50	1.4850	0.0800

Analyst: 0 Date: 9/17/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408529
Lab Code #: K2408529-003
Sample Name: ZAM-003

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/13/2024
Date Received: 8/16/2024
Date Analyzed: 9/6/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.1263
Gravel 2.00 mm (g)	10	0.3780
Gravel 0.850 mm (g)	20	0.3409
Gravel 0.425 mm (g)	40	0.3715
Gravel 0.250 mm (g)	60	0.4645
Gravel 0.106 mm (g)	140	0.8557
Gravel 0.075 mm (g)	200	0.2610
S/C <0.075 mm (g)	Pan	0.1311
Total (g) Recov'd	2.9290	
Total (%) Recov'd	97.3	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	113.3618
Grams Beaker (Tare)	110.3526
Grams Gravel/Sand	3.0092

I. Sample Preparation

Grams As Received Sample	32.0320
Percent (%) Solids	17.9
Grams Oven Dried Sample	5.7337

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.3025	28.1815
Grams of Tare	27.2414	28.1758
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0591	0.0037
Total Grams Sample X 50	2.9550	0.1850

Analyst: 0 Date: 9/17/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408529
Lab Code #: K2408529-004
Sample Name: ZAM-004

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/13/2024
Date Received: 8/16/2024
Date Analyzed: 9/6/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	1.8338
Gravel 2.00 mm (g)	10	1.1494
Gravel 0.850 mm (g)	20	0.9519
Gravel 0.425 mm (g)	40	1.3262
Gravel 0.250 mm (g)	60	2.7448
Gravel 0.106 mm (g)	140	3.0411
Gravel 0.075 mm (g)	200	0.7818
S/C <0.075 mm (g)	Pan	0.1985
Total (g) Recov'd	12.0275	
Total (%) Recov'd	99.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	124.4041
Grams Beaker (Tare)	112.3494
Grams Gravel/Sand	12.0547

I. Sample Preparation

Grams As Received Sample	35.0550
Percent (%) Solids	57.5
Grams Oven Dried Sample	20.1566

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	31.2194	27.4327
Grams of Tare	31.0295	27.3829
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.1879	0.0478
Total Grams Sample X 50	9.3950	2.3900

Analyst: 0 Date: 9/17/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408529
Lab Code #: K2408529-005
Sample Name: ZAM-005

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/14/2024
Date Received: 8/16/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0486
Gravel 2.00 mm (g)	10	0.1660
Gravel 0.850 mm (g)	20	0.4103
Gravel 0.425 mm (g)	40	2.7786
Gravel 0.250 mm (g)	60	10.7705
Gravel 0.106 mm (g)	140	6.3384
Gravel 0.075 mm (g)	200	0.4568
S/C <0.075 mm (g)	Pan	0.0660
Total (g) Recov'd	21.0352
Total (%) Recov'd	99.8

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	129.2953
Grams Beaker (Tare)	108.2243
Grams Gravel/Sand	21.0710

I. Sample Preparation

Grams As Received Sample	35.5110
Percent (%) Solids	60.7
Grams Oven Dried Sample	21.5552

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.6711	40.7341
Grams of Tare	28.6388	40.7291
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0303	0.0030
Total Grams Sample X 50	1.5150	0.1500

Analyst: _____ Date: 9/17/2024
Reviewed by: _____ Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408529
Lab Code #: K2408529-006
Sample Name: ZAM-006

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/14/2024
Date Received: 8/16/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	5.3918
Gravel 2.00 mm (g)	10	2.0925
Gravel 0.850 mm (g)	20	0.7157
Gravel 0.425 mm (g)	40	1.3941
Gravel 0.250 mm (g)	60	1.7869
Gravel 0.106 mm (g)	140	1.0297
Gravel 0.075 mm (g)	200	0.4697
S/C <0.075 mm (g)	Pan	0.1239
Total (g) Recov'd	13.0043
Total (%) Recov'd	99.8

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	122.9714
Grams Beaker (Tare)	109.9471
Grams Gravel/Sand	13.0243

I. Sample Preparation

Grams As Received Sample	30.7190
Percent (%) Solids	71.7
Grams Oven Dried Sample	22.0255

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	41.1306	39.8752
Grams of Tare	40.8472	39.8269
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.2814	0.0463
Total Grams Sample X 50	14.0700	2.3150

Analyst: _____ Date: 9/17/2024
Reviewed by: _____ Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408851
Lab Code #: K2408851-001
Sample Name: ZAM-007

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/15/2024
Date Received: 8/22/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.0197
Gravel 0.850 mm (g)	20	0.4379
Gravel 0.425 mm (g)	40	0.6028
Gravel 0.250 mm (g)	60	1.5917
Gravel 0.106 mm (g)	140	6.8309
Gravel 0.075 mm (g)	200	2.2943
S/C <0.075 mm (g)	Pan	0.8365
Total (g) Recov'd	12.6138
Total (%) Recov'd	99.6

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	117.6319
Grams Beaker (Tare)	104.9613
Grams Gravel/Sand	12.6706

I. Sample Preparation

Grams As Received Sample	37.9150
Percent (%) Solids	70.9
Grams Oven Dried Sample	26.8817

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID# C65669

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.3843	31.6355
Grams of Tare	27.2075	31.5815
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.1748	0.0520
Total Grams Sample X 50	8.7400	2.6000

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-E

Analyst: ZH Date: 9/17/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408851
Lab Code #: K2408851-002
Sample Name: ZAM-008

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/15/2024
Date Received: 8/22/2024
Date Analyzed: 9/6/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.3404
Gravel 2.00 mm (g)	10	0.1379
Gravel 0.850 mm (g)	20	0.5513
Gravel 0.425 mm (g)	40	0.6552
Gravel 0.250 mm (g)	60	1.4666
Gravel 0.106 mm (g)	140	4.9309
Gravel 0.075 mm (g)	200	1.7644
S/C <0.075 mm (g)	Pan	0.6722
Total (g) Recov'd		10.5189
Total (%) Recov'd		99.6

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	126.0606
Grams Beaker (Tare)	115.5008
Grams Gravel/Sand	10.5598

I. Sample Preparation

Grams As Received Sample	39.1490
Percent (%) Solids	62.8
Grams Oven Dried Sample	24.5856

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.5255	27.3185
Grams of Tare	28.2378	27.2694
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.2857	0.0471
Total Grams Sample X 50	14.2850	2.3550

Analyst: 0 Date: 9/17/2024
Reviewed by: Date: 09/19/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2408851
Lab Code #: K2408851-003
Sample Name: ZAM-009

Client: Battelle Memorial Institute
Project: Milwaukee/G32171.X5.X2.0005.00
Sample Matrix: Sediment

Date Collected: 8/15/2024
Date Received: 8/22/2024
Date Analyzed: 9/6/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.3416
Gravel 0.850 mm (g)	20	0.5325
Gravel 0.425 mm (g)	40	0.5072
Gravel 0.250 mm (g)	60	1.1493
Gravel 0.106 mm (g)	140	2.9532
Gravel 0.075 mm (g)	200	0.8416
S/C <0.075 mm (g)	Pan	0.2739
Total (g) Recov'd	6.5993
Total (%) Recov'd	99.2

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	117.3252
Grams Beaker (Tare)	110.6722
Grams Gravel/Sand	6.6530

I. Sample Preparation

Grams As Received Sample	31.3260
Percent (%) Solids	60.2
Grams Oven Dried Sample	18.8583

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 3:50 PM **Time Finish:** 6:05 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.5776	40.0456
Grams of Tare	27.3209	39.9966
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.2547	0.0470
Total Grams Sample X 50	12.7350	2.3500

Analyst: _____ Date: 9/17/2024
Reviewed by: _____ Date: 09/19/24

Work Request # K2408463

IV

Date Analyzed: 8-16-24

Analyst: MAS

Run # 850988

Analysis: PSEP Sulfide

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	(yes)/no/NA
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the bench sheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

Secondary Approved by: _____ Date: 08/26/24

DQREPORT

Analytical Results Summary

Instrument Name: K-UV-VIS-06 **Analyst:** MSPECHT **Analysis Lot:** 850988 **Method/Testcode:** PSEP Sulfide/PSEP Sulfide

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2408463-001	Sulfide, Total	N/A		Soil	0.08 mg/L	10.4600 g	0.5 mg/Kg J	1	0.5	1.4			8/16/24 17:45:00	N	IV
KQ2412829-01	Sulfide, Total	MS	K2408463-001	Soil	0.40 mg/L	10.8080 g	530 mg/Kg	200	80	260	105		8/16/24 17:45:00	N	IV
KQ2412829-02	Sulfide, Total	DMS	K2408463-001	Soil	0.40 mg/L	10.4550 g	540 mg/Kg	200	90	270	104	2	8/16/24 17:45:00	N	IV
KQ2412829-03	Sulfide, Total	DUP	K2408463-001	Soil	0.09 mg/L	10.4520 g	0.6 mg/Kg J	1	0.5	1.4		19	8/16/24 17:45:00	N	IV
KQ2412829-04	Sulfide, Total	TRP	K2408463-001	Soil	0.05 mg/L	10.6440 g	1.3 mg/Kg U	1	0.5	1.3		NC	8/16/24 17:45:00	N	IV
KQ2412829-05	Sulfide, Total	MB		Soil	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/16/24 17:45:00	N	IV
KQ2412829-06	Sulfide, Total	LCS		Soil	0.43 mg/L	10 g	427 mg/Kg	200	60	200	112		8/16/24 17:45:00	N	IV
KQ2413410-01	Sulfide, Total	CCV		Soil	0.60 mg/L	10 g	0.602 mg/L	1					8/16/24 17:45:00	N	IV
KQ2413410-02	Sulfide, Total	CCV		Soil	0.61 mg/L	10 g	0.606 mg/L	1					8/16/24 17:45:00	N	IV
KQ2413410-03	Sulfide, Total	CCB		Soil	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/16/24 17:45:00	N	IV
KQ2413410-04	Sulfide, Total	CCB		Soil	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/16/24 17:45:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Environmental
Kelso

SulfidePSEP_8_16_2024_5:45:00_PM

16-Aug-2024 06:16 PM
Method name: PSEP Sulfide 8-16-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 16-Aug-2024 06:12 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Sample	Absorbance(λ)	Concentration [mg/L]
ccv 1	0.197	0.602
ccb 1	0.002	out of range
mb 1	0.004	out of range
lcs 200x 1	0.141	0.427
8463-1 1	0.029	0.078
8463-1dup 1	0.035	0.094
8463-1trip 1	0.022	0.053
8463-1ms 200x 1	0.133	0.401
8463-1msd 200x 1	0.131	0.395
ccv2 1	0.198	0.606
ccb2 1	0.000	out of range

ALS Environmental
Kelso

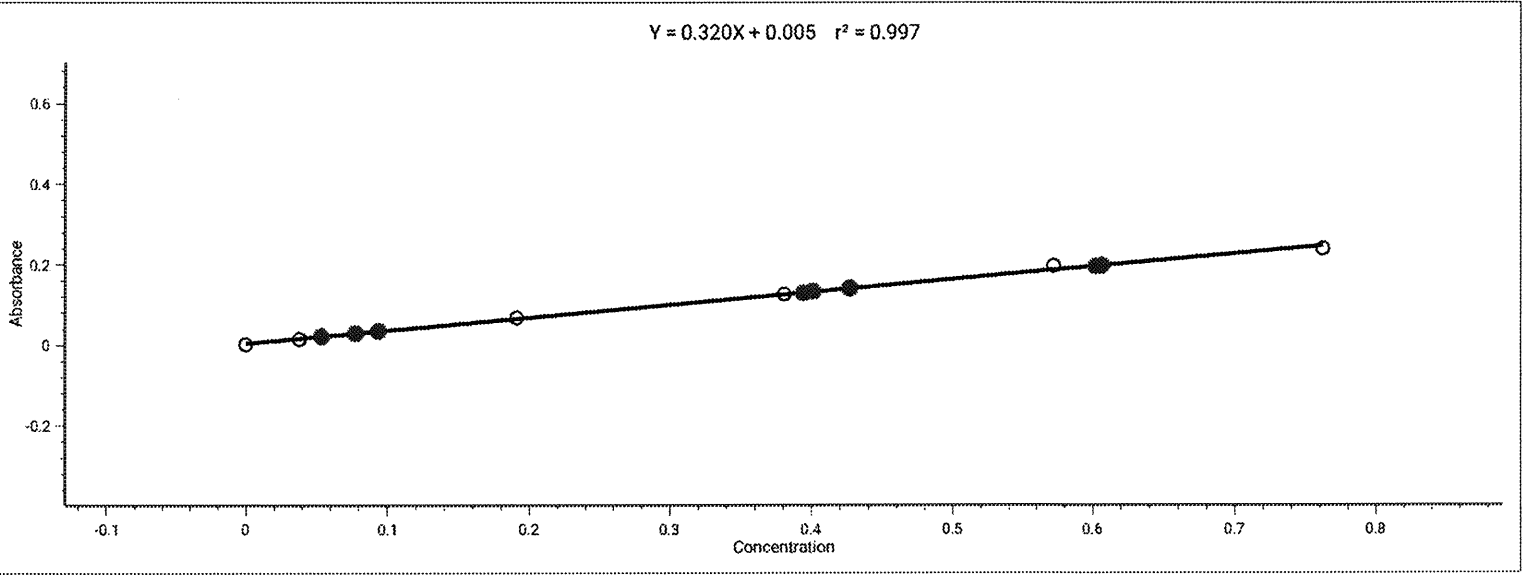
SulfidePSEP_8_16_2024_5:45:00_PM

16-Aug-2024 06:16 PM
Method name: PSEP Sulfide 8-16-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 16-Aug-2024 06:12 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Quant method parameters	
Equation	**Y = 0.320X + 0.005**
R^2:	**1.00**
λ	**650 nm**
Reference λ	



Standard	Absorbance(λ)	Concentration [mg/L]
Standard 1	0.002	out of range
Standard 2	0.015	0.038
Standard 3	0.068	0.191
Standard 4	0.127	0.381
Standard 5	0.197	0.572
Standard 6	0.240	0.762

Calibration Curve Relative Error Evaluation - Inorganics

Method:	PSEP SULFIDE
Run Number:	850988
Instrument:	K-UV-VIS-06
Date:	08/16/24

Instructions:

1) Enter slope (a) and intercept (b) from calibration raw data.
2) Enter calibration true values (do not include the origin (0,0) as a clibration point).
3) Enter the measured response for each calibration point.
4) If different than ±10%, update the %RE criteria to the method's CCV criteria.
   (Note that the low point criteria is ± 50% for all methods)
5) Reject the calibration if any standard point "Fail".

Y = aX + b

a =	0.32
b =	0.005

Standard #	True Value	Measured Response	Calculated Concetration	Percent Relative Error (%RE)	%RE Criteria	Pass/Fail
1	0.038	0.015	0.0313	-17.8	50	Pass
2	0.191	0.068	0.1969	3.1	10	Pass
3	0.381	0.127	0.3813	0.1	10	Pass
4	0.572	0.197	0.6000	4.9	10	Pass
5	0.762	0.240	0.7344	-3.6	10	Pass
6					10	
7					10	
8					10	

PSEP Curve		
Amount (mL)	**Conc (mg/L)**	**S2 WSTD (mg/L) 200x dilution**
0.00	0.0000	**19.05**
0.10	0.0381	
0.50	0.1905	
1.00	0.3810	
1.50	0.5715	
2.00	0.7620	

Change WL to 650 nm

CCV S2 mg/L:	3809

CCV Standardization Check	
Ml S203 Check 1:	1.53
Ml S203 Check 2:	1.46
Avg ml S203:	**1.50**

ICV Standardization Check		S2 mg/L RPD	(+/- 10%)
Ml S203 Check:	1.46	1.1	
ICV S2 mg/L:	3823		

Work Order #.: K240 8463

Analysis: 9030/ 9030M/ AVS/ PSEP

Date Prepared	Sample Name / Lab Code	Initial Wt./Vol. (g) or (ml)	Final Volume (ml)	mg/L - mg/kg As Rec'd	% Solids	mg/kg Dry Wt.
8-16-24	MB	10.0	50			
	LCS	10.0				
	8463-1	10.460				
	-1dup	10.452				
	-1trip	10.644				
	-1MS	10.808				
	-1msd	10.455				
			N/A			
					MAS 8-16-24	

Prepared By:	MAS	8-16-24
Analyzed By:	MAS	8-16-24
Reviewed By:		08/26/24

Preparation Information Benchsheet

Prep Run#: 443333
Team: GenChem/MSPECHT
Number of Copies to make: 1

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 8/16/24 13:50

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2412829-05	MB		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
2	KQ2412829-06	LCS		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
3	K2408463-001	2024KGMLJCS1	.02	PSEP Sulfide/PSEP Sulfide		Soil	10.4600g	50.00mL	
4	KQ2412829-03	K2408463-001 DUP	.02	PSEP Sulfide/PSEP Sulfide		Solid	10.4520g	50.00mL	
5	KQ2412829-04	K2408463-001 TRP	.02	PSEP Sulfide/PSEP Sulfide		Solid	10.6440g	50.00mL	
6	KQ2412829-01	K2408463-001 MS	.02	PSEP Sulfide/PSEP Sulfide		Solid	10.8080g	50.00mL	
7	KQ2412829-02	K2408463-001 DMS	.02	PSEP Sulfide/PSEP Sulfide		Solid	10.4550g	50.00mL	

Preparation Steps

Step: Distillation
Started: 8/16/24 13:50
Finished: 8/16/24 14:58
By: MSPECHT
Comments

Comments: _____

Reviewed By: _____ Date: 08/26/24

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

ALS Environmental - Laboratory Note Sheet

Service Request Number(s):
K2408463

Sample Number	Initial Volume	Final Volume	Dilution Factor		
LCS	0.125mL	25mL	200x		
8463-1MS	1	1	1		
1-1MSd	1	1	1		
		N			
			A		
				NAS	
				8.26.24	

Comments/Notes:

Analyst: NAS Date: 8.16.24

Reviewed: Date: 08/26/24

R:\WET\ANALYSES\Dilution Benchsheet 2022

StarLims Run #: 850988

Analysis: **Sulfide**

Method: **PSEP**

Al Treated HCl: 24-GEN-05-15K Stock Amine Solution (DPD): 24-GEN-05-24B

Iodine Solution: 24-GEN-05-15H DPD Working Solution: 24-GEN-05-24C

Ferric Chloride: 24-GEN-05-15J

Sodium Hydroxide 0.5N: 24-GEN-05-24G, 25A

(CCV) Sodium Thiosulfate 0.025N: 23-GEN-06-17F HCl (6N): 24-GEN-05-15I

(ICV) Sodium Thiosulfate 0.025N: 23-GEN-06-09I

Starch Indicator Solution: 24-GEN-05-11J H2SO4 (50%): 23-GEN-1-96L

Sulfide Stock Standard: 21-GEN-S2/4-3A

Sulfide Working Standard: 21-GEN-S2/4-83U

Equipment: K-HOTBLOCK-03,K-HOTBLOCK-04, K-UV-VIS-06

Pipettes: Ophos-Alfred, TOC-AGENT SMITH, TEALY

Analyzed By: MAS	Date Analyzed: 8/16/2024
Reviewed By:	Date Reviewed: 08/26/24

Work Request # K2408463

Date Analyzed: 8/19/24

Analyst: ARM

Run # 851047

Analysis: PSEP soil TOC

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	yes/no/NA

COMMENTS:

Final Approved by: _____ Date: 08/20/24

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 851047 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2408463-001	Carbon, Total Organic (TOC)	N/A		Soil	0.37 Percent	250 mg	0.37 Percent	1	0.005	0.10			8/19/24 08:34:30	N	IV
K2408463-002	Carbon, Total Organic (TOC)	N/A		Soil	0.57 Percent	250 mg	0.57 Percent	1	0.005	0.10			8/19/24 08:34:30	N	IV
K2408463-003	Carbon, Total Organic (TOC)	N/A		Soil	0.29 Percent	250.8 mg	0.29 Percent	1	0.005	0.10			8/19/24 08:34:30	N	IV
KQ2412869-01	Carbon, Total Organic (TOC)	LCS		Soil	3.26 Percent	250.3 mg	3.26 Percent	1	0.005	0.10	109		8/19/24 08:34:30	N	IV
KQ2412869-02	Carbon, Total Organic (TOC)	MB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/19/24 08:34:30	N	IV
KQ2412869-03	Carbon, Total Organic (TOC)	DUP	K2408463-001	Soil	0.36 Percent	250.2 mg	0.36 Percent	1	0.005	0.10		3	8/19/24 08:34:30	N	IV
KQ2412869-04	Carbon, Total Organic (TOC)	TRP	K2408463-001	Soil	0.37 Percent	250.5 mg	0.37 Percent	1	0.005	0.10		2	8/19/24 08:34:30	N	IV
KQ2412869-05	Carbon, Total Organic (TOC)	MS	K2408463-001	Soil	2.79 Percent	125 mg	2.79 Percent	1	0.005	0.10	100		8/19/24 08:34:30	N	IV
KQ2412869-06	Carbon, Total Organic (TOC)	DMS	K2408463-001	Soil	2.74 Percent	125.3 mg	2.74 Percent	1	0.005	0.10	98	2	8/19/24 08:34:30	N	IV
KQ2412870-01	Carbon, Total Organic (TOC)	CCV		Soil	12.39 Percent	25.0 mg	12.4 Percent	1			103%		8/19/24 08:34:30	N	IV
KQ2412870-02	Carbon, Total Organic (TOC)	CCV		Soil	12.29 Percent	25.2 mg	12.3 Percent	1			102%		8/19/24 08:34:30	N	IV
KQ2412870-03	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/19/24 08:34:30	N	IV
KQ2412870-04	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/19/24 08:34:30	N	IV

AFM 8/19/24

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

AnalysisGroup

AnalysisGroup: % TOC 2024E

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 7/12/2024 11:11:53 AM
Last modification: 8/19/2024 10:46:20 AM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.39% 103%	25.000mg	8/19/2024 8:34:30 AM	
CCB	TC: 0.0046%	250.000mg	8/19/2024 8:46:20 AM	TC: Out of the calibrated ranges
LCS	TC: 3.26% 109%	250.300mg	8/19/2024 8:55:13 AM	
MB	TC: 0.00030%	250.000mg	8/19/2024 9:06:59 AM	TC: Out of the calibrated ranges
K2408463-001	TC: 0.37%	250.000mg	8/19/2024 9:15:25 AM	
K2408463-001D	TC: 0.36%	250.200mg	8/19/2024 9:25:25 AM	
K2408463-001TR	TC: 0.37%	250.300mg	8/19/2024 9:35:14 AM	
K2408463-001MS	TC: 2.79%	125.000mg	8/19/2024 9:46:35 AM	
K2408463-001MSD	TC: 2.74%	125.300mg	8/19/2024 9:57:41 AM	
K2408463-002	TC: 0.57%	250.000mg	8/19/2024 10:07:41 AM	
K2408463-003	TC: 0.29%	250.800mg	8/19/2024 10:17:45 AM	
CCV	TC: 12.29% 102%	25.200mg	8/19/2024 10:27:56 AM	
CCB	TC: 0.00000%	250.000mg	8/19/2024 10:38:21 AM	TC: Out of the calibrated ranges

AKm 8/19/24

Service Request: K2408463 **Method:** 9060 TOC Modified

Date Weighed: 8/19/2024 **Analysis:** Total Organic Carbon in Soil

Analyst: AEM **Prep Run / Run #** 443273 / 851047

Sample Position	Sample ID	Weight (mg)
1	Clean	NA
2	CCV	25.0
3	CCB	250.0
4	LCS	250.3
5	MB	250.0
6	K2408463-001	250.0
7	K2408463-001D	250.2
8	K2408463-001TR	250.5
9	K2408463-001MS	125.0
10	K2408463-001MSD	125.3
11	K2408463-002	250.0
12	K2408463-003	250.8
13	CCV	25.2
14	CCB	250.0
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

Sample Position	Sample ID	Weight (mg)
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		

AEM 8/19/24

MS CaCO3 (mg)	K2408463-001MS	25.2
MSD CaCO3 (mg)	K2408463-001MSD	25.3

Equipment: K-TOC-04 **HCL ID:** 19-GEN-12-9-F, Exp: 1/29/25

Calibration Expires: 3/14/25 **Oven ID:** K-OVEN-11

Balance ID: K-BALANCE-38 **Thermometer ID:** K-OVEN-11

CCV: CaCO3, JT Baker, ID: 19-GEN-13-71-A, Lot # 228036, Exp: 2/20/26, TV = 12.0 % C

LCS/SRM: NIST SRM, Lot # 1941b, Organics in Marine Sediment, ID: 19-GEN-13-97-J, Exp: 9/14/32, TV = 2.99 % TOC

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration QC Check

AnalysisGroup

AnalysisGroup: % TOC 2024b

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 2/23/2024 5:07:30 PM
Last modification: 3/15/2024 2:02:58 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
ICV - 25mg	TC: 11.81%	25.200mg	3/15/2024 12:12:46 PM	
ICV - 100mg	TC: 11.99%	100.300mg	3/15/2024 12:22:18 PM	
ICB	TC: 0.0014%	250.000mg	3/15/2024 12:32:34 PM	TC: Out of the calibrated ranges
CCV	TC: 11.85%	25.100mg	3/15/2024 12:41:07 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 12:50:16 PM	TC: Out of the calibrated ranges
LCS	TC: 3.14%	250.300mg	3/15/2024 12:58:11 PM	
DLCS	TC: 3.12%	250.300mg	3/15/2024 1:09:41 PM	
MB	TC: 0.0053%	250.000mg	3/15/2024 1:20:59 PM	TC: Out of the calibrated ranges
LOQ - 0.1% C	TC: 0.099%	253.300mg	3/15/2024 1:29:28 PM	
LOD - 0.01% C	TC: 0.014%	251.100mg	3/15/2024 1:37:55 PM	
CCV	TC: 11.90%	25.200mg	3/15/2024 1:46:25 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 1:55:32 PM	TC: Out of the calibrated ranges

ICV: 19-GEN-13-94-A (TV = 12% C)
CCV: 19-GEN-13-71-A (TV = 12% C)
LCS: 19-GEN-13-97-J (TV = 2.99% C / TOC)
LOQ: 19-GEN-12-7-G (TV = 0.1% C)
LOD: 19-GEN-12-7-H (TV = 0.01% C)

MB/LCS/DLCS → Acidified w/ 19-GEN-12-8-K

DAB 3/15/24

Method

Method: TOC by Manual Acidification - 3/14/24 **Version** 3

Created on: 3/14/2024 1:39:46 PM **of:** User
Last modification: 3/14/2024 5:28:48 PM **of:** User

Status: authorized
State: solid
Furnace: Ceramic tube (CS) - horizontal

Determinations:
Determinations: 1 - 1
Calculation algorithm: Conc_solid_EA4000_%
Operands:
Weight 1mg

Process:
FPG EA4000 (Default)
Furnace temperature 1100°C

Detection:

	TC
Detector	C_C201
Maximum integration time	600s
Stability	3
Start	0.12ppm
Threshold	5ppm

CalibrationData:

Calibration parameters TC		**[CR1]3,932AU - 47,966AU**	**[CR2]47,966AU - 3,627,304AU**
Type		Measurement	Measurement
Linked on		3/14/2024	3/14/2024
Name		Cal_TOC by Manual Acidification - 3/14/24_20240314_161842	Cal_TOC by Manual Acidification - 3/14/24_20240314_142421
Regression	**Type**	linear	linear
	K0	-3.118e+0	2.144e+1
	K1	6.357e-3	6.62e-3
Daily factor		1	1
	Type	Default	Default
	Date	3/14/2024	3/14/2024

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1

Calibration of:	3/14/2024 2:34:16 PM	**of:**	User
Last modification:	3/14/2024 3:51:20 PM	**of:**	User
Type:	Constant concentration		

Calibration parameters TC

Linear regression:	c*m = 6.62e-3*I+2.144e+1
K0:	2.144e+1
K1:	6.62e-3
Calibration range:	42,076AU - 3,627,304AU

Residual standard deviation:	10,941AU	**Linearity:**	linear
Method standard deviation:	72.44211	**Variance homogeneity:**	non homogeneous
Method variation coefficient:	0.97368%	**Detection limit:**	150.59µg
Quality of replicates:	0.99994	**Identification limit:**	301.18µg
Correlation coefficient:	0.99997	**Quantification limit:**	560.69µg

Constant concentration: 12.00%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 2.500mg	48,075AU	13.59%	13.2%	0.000AU
2	1/1	Weight: 5.200mg	90,273AU	11.91%	-0.79%	0.000AU
3	1/1	Weight: 10.200mg	177,764AU	11.75%	-2.10%	0.000AU
4	1/1	Weight: 15.100mg	262,109AU	11.63%	-3.05%	0.000AU
5	1/1	Weight: 24.900mg	441,009AU	11.81%	-1.57%	0.000AU
6	1/1	Weight: 50.100mg	912,060AU	12.10%	0.79%	0.000AU
7	1/1	Weight: 99.900mg	1,812,969AU	12.04%	0.30%	0.000AU
8	1/1	Weight: 149.800mg	2,729,736AU	12.08%	0.65%	0.000AU
9	1/1	Weight: 200.300mg	3,610,903AU	11.95%	-0.45%	0.000AU

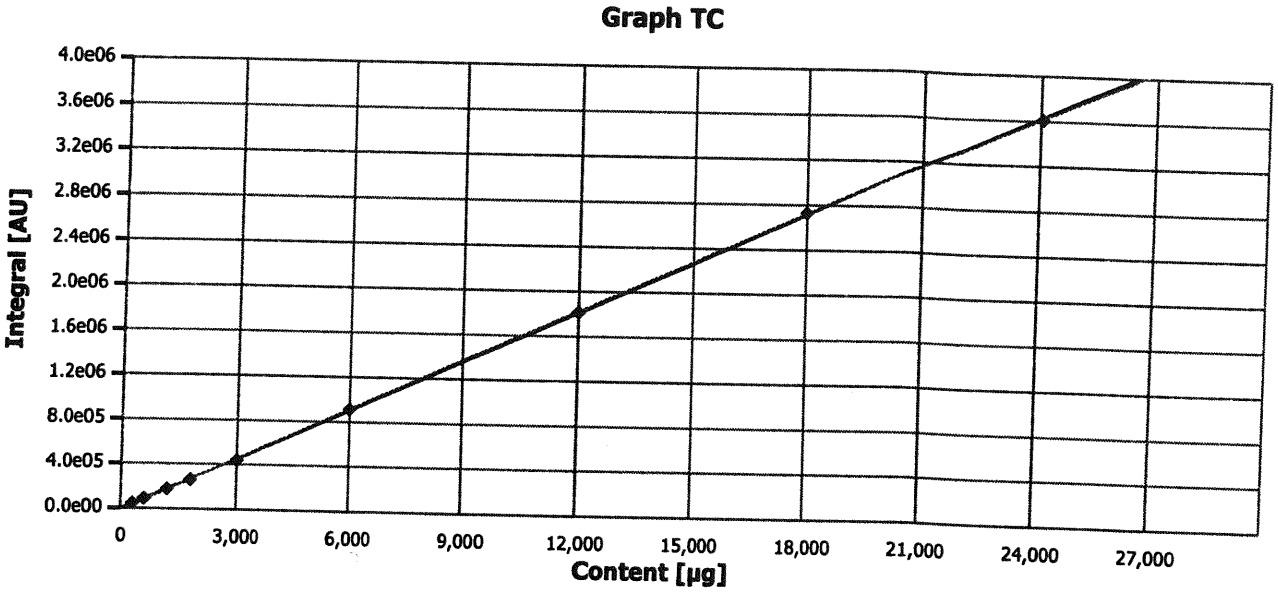
Calcium Carbonate ID: 19-GEN-13-71-A (TV= 12% C)

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1



aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1

Calibration of: 3/14/2024 4:26:04 PM **of:** User
Last modification: 3/14/2024 5:27:01 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.357e-3*I-3.118e+0
K0: -3.118e+0
K1: 6.357e-3
Calibration range: 3,932AU - 47,966AU

Residual standard deviation: 1,350AU
Method standard deviation: 8.63664
Method variation coefficient: 5.99715%
Quality of replicates: 0.99354
Correlation coefficient: 0.99676

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 20.04µg
Identification limit: 40.09µg
Quantification limit: 69.61µg

Constant concentration: 0.100%

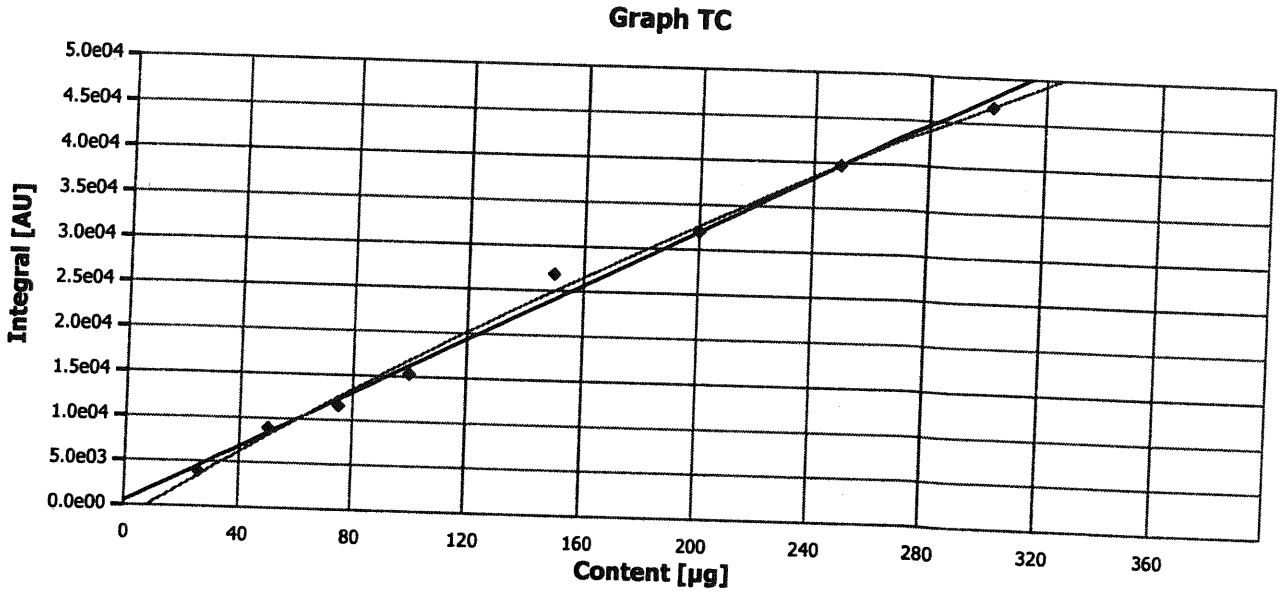
Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 25.400mg	3,932AU	0.086%	-13.9%	0.000AU
2	1/1	Weight: 50.300mg	8,913AU	0.11%	6.44%	0.000AU
3	1/1	Weight: 75.000mg	11,596AU	0.094%	-5.87%	0.000AU
4	1/1	Weight: 99.800mg	15,331AU	0.095%	-5.47%	0.000AU
5	1/1	Weight: 149.900mg	26,864AU	0.11%	11.8%	0.000AU
6	1/1	Weight: 200.100mg	32,001AU	0.10%	0.11%	0.000AU
7	1/1	Weight: 249.800mg	39,745AU	0.100%	-0.11%	0.000AU
8	1/1	Weight: 301.800mg	46,777AU	0.097%	-2.50%	0.000AU

KHP (0.1% C) ID: 19-GEN-12-7-6

DAB 3/15/24

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 443272
Team: Metals/MSOLADEY
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 8/19/24 12:45

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2412724-03	MB		200.8/Metals T		Solid	1g	100.00mL	10%HNO3, 10%HCl
2	KQ2412724-04	LCS		200.8/Metals T		Solid	1g	100.00mL	10%HNO3, 10%HCl
3	K2408463-001	2024KGMLJCS1	.01	200.8/Metals T		Soil	1.016g	100.00mL	PPRICE k-balance-49 / 10%HNO3, 10%HCl
4	KQ2412724-01	K2408463-001 DUP	.01	200.8/Metals T		Solid	1.006g	100.00mL	PPRICE k-balance-49 / 10%HNO3, 10%HCl
5	KQ2412724-02	K2408463-001 MS	.01	200.8/Metals T		Solid	1.079g	100.00mL	PPRICE k-balance-49 / 10%HNO3, 10%HCl
6	K2408463-002	2024KGMLJCS2	.01	200.8/Metals T		Soil	1.265g	100.00mL	PPRICE k-balance-49 / 10%HNO3, 10%HCl
7	K2408463-003	2024KGMLJCS3	.01	200.8/Metals T		Soil	1.306g	100.00mL	PPRICE k-balance-49 / 10%HNO3, 10%HCl

Spiking Solutions

Name: K-MET SS3 Inventory ID 234899 Logbook Ref: MET4-62-A Expires On: 09/30/2024

KQ2412724-02 1.00mL KQ2412724-04 1.00mL

Name: K-MET SS4 Inventory ID 235720 Logbook Ref: MET4-67-G Expires On: 10/20/2024

KQ2412724-02 1.00mL KQ2412724-04 1.00mL

Name: K-MET SS1 Inventory ID 236796 Logbook Ref: MET4-71-I Expires On: 03/22/2025

KQ2412724-02 2.00mL KQ2412724-04 2.00mL

Preparation Materials

K-MET 100ml Centrifuge Tube	L223102601 (235884)	K-MET HCL	23H2862017 (236552)	K-MET H2O2	63230401 (236526)
K-MET HNO3	23H1462003 (236022)	K-METPTFE Boiling chips	29036769 (234578)		

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/19/24 12:45	Started:	8/19/24 12:45
Finished:	8/19/24 16:07	Finished:	8/19/24 16:07
By:	MSOLADEY	By:	MSOLADEY
Comments		Comments	

Preparation Equipment

K-BlockDigester-02	Digestion	IR Thermometer ID: IR03		K-BlockDigester-02	Digestion	Temperature	96.0 deg C
K-BlockDigester-02	Digestion	Temperature Check Location	23	K-DGV 100-1000B	Digestion		
K-41585306	Digestion						

Preparation Information Benchsheet

Prep Run#: 443272
Team: Metals/MSOLADEY

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 8/19/24 12:45

Comments: R1:15 min, R2:120 min, R3:15 min

Reviewed By: AB Date: 8/20/24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1 *** Add after HNO3 and before ALS-89 when making the solution	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
	Mn	100*	1000ml	50	
	Ni	100*	1000ml	50	
	Sb***	50.0	1000ml	50	
	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 443272
Team: Metals/PPRICE
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Draft
Prep Date/Time: 8/15/24 14:26 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2412724-03**	MB			200.8 / Metals T	Solid						
2	**KQ2412724-04**	LCS			200.8 / Metals T	Solid						
3	**K2408463-001**	2024KGMLJCS1	.01		200.8 / Metals T	Soil						
4	**KQ2412724-01**	K2408463-001 DUP	.01		200.8 / Metals T	Solid						
5	**KQ2412724-02**	K2408463-001 MS	.01		200.8 / Metals T	Solid						
6	**K2408463-002**	2024KGMLJCS2	.01		200.8 / Metals T	Soil						
7	**K2408463-003**	2024KGMLJCS3	.01		200.8 / Metals T	Soil						

R1 - 12:45 - 1:00
R2 - 1:03 - 1:48
H_2O_2 - 2:37 - 3:48
R3 - 3:52 - 4:07

Comments: BD-2 TC: 23 T: 96.0

Surrogate ID:

Spike ID: 551, 553, 554

Witnessed By:

Analyst:

Assisted By:

Pre-Prep Information Benchsheet

Prep Run #: 443272 **Container Lot No:** 2111109 **Prep Due Date:**

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408463-001	.01	Metals T : 200.8/	1.016g		PPRICE k-balance-49
2	K2408463-001 DUP KQ2412724-01	.01	Metals T : 200.8/	1.006g		PPRICE k-balance-49
3	K2408463-001 MS KQ2412724-02	.01	Metals T : 200.8/	1.079g		PPRICE k-balance-49
4	K2408463-002	.01	Metals T : 200.8/	1.265g		PPRICE k-balance-49
5	K2408463-003	.01	Metals T : 200.8/	1.306g		PPRICE k-balance-49

Relinquished By:	Date/Time:	Received By:	Date/Time:
PDD	8/15/24 1430		8/19/24 9:46

Service Request # K2408463
Instrument ID # K-ICP-MS-05
Calibration 082724A1ICPMS05
ALS LIMS Run # 852042
Cal Std: MS34-25-E ICSA Std: MS34-25-H
ICV Std: MS34-25-F ICSAB Std: MS34-25-I
LLICV Std: MS34-25-G
I.S. Solution: MS33-40-A
EPA Tune Solution: MS33-39-E
Pipette IDs: 38480473, 42390072, 44183886

ICP-MS Data Review Form

	Yes	No	NA
1. Appropriate standardization completed	X		
2. ICV in control (+/- 10%)	X		
3. CCV's in control (+/- 10%)	X		
4. ICB/CCB's below MRL	X		
5. LLICV standard analyzed and in control	X		
6. ICS standards within 20% of true value			X
7. All analytes within instrument linear range	X		
8. Adequate rinse out time allowed	X		
9. Internal standards in control	X		
10. Interferences checked	X		
11. Was the run terminated? If so, why.		X	

See Benchsheet exception report for sample batch QC information.
Comments:

Prep Batch: 443272

Primary Review by JT Date 8/27/24

Secondary Review by PRM Date 8/27/24

Data Review Form

Instrument ID#: **K-ICP-MS-05**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-MS-05 (Agilent)\082724A1.csv**
RUNNO: **852042**

K2408463

K2408463-001DUP - Metals T -

DUP RPD

200.8/Metals T - 107 Ag [He] - RPD: 52 Limit: 30

Primary Approver: JI 8/27/24
Secondary Approver: RLM 8/27/24

Sample

		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
1			001CALB.	2024-08-27 09:23:32	CalBlk		Prime		2
2			002CALB.	2024-08-27 09:26:06	CalBlk		Rinse		3
3			003CALB.	2024-08-27 09:28:42	CalBlk	1	Blank		3
4			004CALS.	2024-08-27 09:31:17	CalStd	2	25ppb		2
5			005_ICV.d	2024-08-27 09:33:51	ICV		ICV		1103
6			006_CCV.	2024-08-27 09:36:25	CCV		CCV		2
7			007_ICB.d	2024-08-27 09:39:00	ICB		ICB		3
8			008_CCB.	2024-08-27 09:41:35	CCB		CCB		3
9			009LICV.d	2024-08-27 09:44:10	LLICV		LLICVS		1104
10			010SMPL.	2024-08-27 09:46:46	Sample		MoSTD		1107
11	✓		011_PB.d	2024-08-27 09:55:10	PB		KQ2412724-03	5X	2101
12			012_LCS.d	2024-08-27 09:57:45	LCS		KQ2412724-04	20X	2102
13			013_ARF.d	2024-08-27 10:00:18	AllRef		K2408463-001	5X	2103
14	✓		014_Dup.d	2024-08-27 10:02:52	Dup		KQ2412724-01	5X	2104
15	✓		015_Spk.d	2024-08-27 10:05:26	Spike		KQ2412724-02	5X	2105
16			016SMPL.	2024-08-27 10:07:55	Sample		K2408463-002	5X	2106
17			017SMPL.	2024-08-27 10:10:29	Sample		K2408463-003	5X	2107
18	✓		018_CCV.	2024-08-27 10:13:03	CCV		CCV		2
19			019_CCV.	2024-08-27 10:20:19	CCV		CCV		2
20			020_CCB.	2024-08-27 10:22:53	CCB		CCB		3

JC 8/29/24

Analyte

	Name	Mass	ISTD	Tune Mode	Conc.	Units	Replicate
1	Al	27	6	No Gas	-0.0647	ug/l	3
2	Cr	52	72	He	-0.0059	ug/l	3
3	Cr	53	72	He	-0.1103	ug/l	3
4	Ni	60	72	He	-0.0061	ug/l	3
5	Ni	62	72	He	-0.0173	ug/l	3
6	Cu	63	72	He	-0.0020	ug/l	3
7	Cu	65	72	He	0.0097	ug/l	3
8	Zn	66	72	He	0.0097	ug/l	3
9	As	75	72	He	0.0090	ug/l	3
10	Se	77	72	H2	-0.0674	ug/l	3
11	Se	78	72	H2	0.0009	ug/l	3
12	Mo	95	115	He	0.0017	ug/l	3
13	Mo	98	115	He	0.0062	ug/l	3
14	Ag	107	115	He	-0.0006	ug/l	3
15	Ag	109	115	He	0.0013	ug/l	3
16	Cd	111	115	He	0.0016	ug/l	3
17	Cd	114	115	He	0.0002	ug/l	3

Analyte							
Name		Mass	ISTD	Tune Mode	Conc.	Units	Replicate
18	[Pb]	206	175	He	0.0047	ug/l	3
19	[Pb]	207	175	He	0.0018	ug/l	3
20	Pb	208	175	He	0.0018	ug/l	3
21	Li	6		No Gas			3
22	Sc	45		No Gas			3
23	Sc	45		He			3
24	Ge	72		H2			3
25	Ge	72		He			3
26	In	115		He			3
27	Lu	175		He			3
28	Th	232		He			3

US EPA Tune Check Report

Operator Name	ALKLS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\082724.b
Acq. Date-Time	2024-08-27 06:48:38
Report Comment	ALS Tune
Instrument Name	G3281A JP13482848

[No Gas]

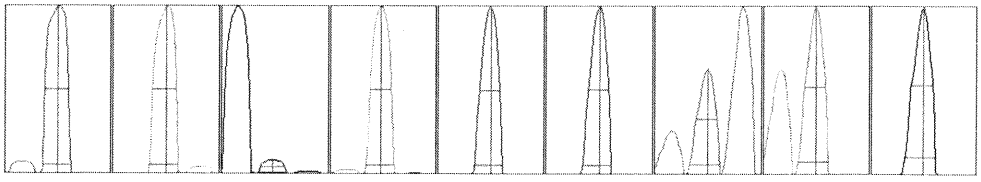
Sensitivity

Mass	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	72089.06	1.497	5.000	
9	21480.26	0.997	5.000	
24	147982.48	1.222	5.000	
59	342178.02	0.877	5.000	
115	587166.94	0.978	5.000	
140	634091.23	1.346	5.000	
208	348291.50	0.711	5.000	
209	552330.86	1.174	5.000	
238	717918.38	0.854	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	7022	7226	7248	7251	7298
9	2112	2165	2157	2147	2160
24	14505	14771	14979	14841	14896
59	33705	34268	34496	34317	34303
115	57713	58787	59132	58985	58966
140	61913	63667	63981	63569	63916
208	34439	34834	34981	35091	34801
209	54133	55726	55662	55446	55198
238	70817	72292	71998	72263	71589

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
7	11336.82	7.05	6.90 - 7.10		0.788		0.900
9	3494.45	9.05	8.90 - 9.10		0.782		0.900
24	23380.74	23.95	23.90 - 24.10		0.803		0.900

US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
59	57558.99	58.95	58.90 - 59.10		0.817		0.900
115	107361.19	115.05	114.90 - 115.10		0.783		0.900
140	118991.27	140.05	139.90 - 140.10		0.785		0.900
208	61730.67	208.00	207.90 - 208.10		0.834		0.900
209	98884.97	209.00	208.90 - 209.10		0.838		0.900
238	125098.29	238.00	237.90 - 238.10		0.856		0.900

Integration Time [sec]	0.1
Acquisition Time [sec]	268.4
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.57 L/min	Dilution Gas	0.50 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.76 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.1 V	Deflect	12.2 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-95 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	180 V		

QP Parameters

Mass Gain	126	Axis Gain	1.0008	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.04		

Hardware Settings

Torch

Torch H	0.0 mm	Torch V	1.0 mm		

EM

Discriminator	4.5 mV	Analog HV	1846 V	Pulse HV	1607 V

Calibration Blank Report

Sample Name	Blank
File Name	003CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:28:42
Sample Type	CalBlk
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	6	No Gas	33246.21	16.4
Se	77	72	H2	1663.75	1.6
Se	78	72	H2	12.00	25.0
Cr	52	72	He	684.47	10.7
Cr	53	72	He	444.46	6.3
Ni	60	72	He	156.67	21.0
Ni	62	72	He	27.78	6.9
Cu	63	72	He	366.67	15.8
Cu	65	72	He	128.89	10.8
Zn	66	72	He	282.23	18.3
As	75	72	He	28.33	11.3
Mo	95	115	He	35.56	62.4
Mo	98	115	He	26.66	57.3
Ag	107	115	He	45.56	27.7
Ag	109	115	He	42.22	4.6
Cd	111	115	He	14.17	11.3
Cd	114	115	He	59.83	8.1
[Pb]	206	175	He	177.78	22.4
[Pb]	207	175	He	160.00	22.5
Pb	208	175	He	755.57	8.4

JC 8/29/24

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	422960.30	0.9
Sc	45	No Gas	9036608.25	1.1
Ge	72	H2	2029965.96	0.9
Sc	45	He	257908.72	0.5
Ge	72	He	256016.96	1.1
In	115	He	2786204.64	2.2
Lu	175	He	6765866.12	0.5
Th	232	He	11221308.17	2.0

Calibration Standard Report

Sample Name	25ppb
File Name	004CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:31:17
Sample Type	CalStd
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	6	No Gas	5425449.23	3.8
Se	77	72	H2	11260.05	1.8
Se	78	72	H2	28886.40	1.2
Cr	52	72	He	188063.16	1.2
Cr	53	72	He	23805.29	0.7
Ni	60	72	He	96848.65	1.0
Ni	62	72	He	15332.43	1.9
Cu	63	72	He	284011.18	0.1
Cu	65	72	He	141414.22	0.3
Zn	66	72	He	40053.34	1.8
As	75	72	He	26285.50	1.8
Mo	95	115	He	70898.95	0.5
Mo	98	115	He	121165.07	1.0
Ag	107	115	He	261846.77	0.5
Ag	109	115	He	257865.51	0.5
Cd	111	115	He	64512.58	0.2
Cd	114	115	He	166871.18	0.5
[Pb]	206	175	He	396020.97	0.9
[Pb]	207	175	He	339884.23	0.3
Pb	208	175	He	1580361.83	0.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	422196.64	0.5	422960.3	99.82	
Sc	45	No Gas	9239309.63	0.6	9036608.25	102.24	
Ge	72	H2	2079235.54	1.2	2029965.96	102.43	
Sc	45	He	261427.12	1.6	257908.72	101.36	
Ge	72	He	263948.14	1.1	256016.96	103.1	
In	115	He	2831556.79	1.2	2786204.64	101.63	
Lu	175	He	6783704.17	0.5	6765866.12	100.26	
Th	232	He	11457267.33	1.6	11221308.17	102.1	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	005_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:33:51
Sample Type	ICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	102.7960	ug/l	3.2	2259865.40	102.8	
Se	77	72	H2	24.4233	ug/l	2.6	11228.37	97.69	
Se	78	72	H2	25.0074	ug/l	1.2	29389.58	100.03	
Cr	52	72	He	10.2349	ug/l	0.9	78057.82	102.35	
Cr	53	72	He	9.9917	ug/l	3.2	9871.74	99.92	
Ni	60	72	He	26.5410	ug/l	0.4	103671.18	106.16	
Ni	62	72	He	26.2763	ug/l	1.1	16246.60	105.11	
Cu	63	72	He	13.0646	ug/l	1.1	149840.42	104.52	
Cu	65	72	He	13.0165	ug/l	0.2	74309.91	104.13	
Zn	66	72	He	26.0320	ug/l	0.5	42042.59	104.13	
As	75	72	He	25.9281	ug/l	0.8	27488.69	103.71	
Mo	95	115	He	25.0838	ug/l	1.5	147628.52	100.34	
Mo	98	115	He	25.2042	ug/l	0.4	253561.65	100.82	
Ag	107	115	He	12.3349	ug/l	0.8	268199.24	98.68	
Ag	109	115	He	12.3894	ug/l	2.0	265249.61	99.12	
Cd	111	115	He	13.0863	ug/l	1.2	35056.95	104.69	
Cd	114	115	He	13.1455	ug/l	1.3	91105.60	105.16	
[Pb]	206	175	He	25.7206	ug/l	1.0	417072.83	102.88	
[Pb]	207	175	He	24.7844	ug/l	0.5	344935.63	99.14	
Pb	208	175	He	25.1236	ug/l	0.8	1625776.31	100.49	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	423910.16	1.4	422960.3	100.22	
Sc	45	No Gas	9269978.80	2.8	9036608.25	102.58	
Ge	72	H2	2114781.65	1.2	2029965.96	104.18	
Sc	45	He	265624.65	1.2	257908.72	102.99	
Ge	72	He	266136.53	0.5	256016.96	103.95	
In	115	He	2939053.55	1.6	2786204.64	105.49	
Lu	175	He	6944398.20	0.7	6765866.12	102.64	
Th	232	He	11447587.75	2.4	11221308.17	102.02	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 006_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082724A1.b

Acq Time 2024-08-27 09:36:25

Sample Type CCV

Comment —

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	249.4258	ug/l	5.6	5450752.28	99.77	
Se	77	72	H2	24.9906	ug/l	3.0	11390.48	99.96	
Se	78	72	H2	25.6448	ug/l	1.5	29984.95	102.58	
Cr	52	72	He	24.9561	ug/l	0.5	192336.32	99.82	
Cr	53	72	He	24.5036	ug/l	0.6	23915.45	98.01	
Ni	60	72	He	24.8858	ug/l	1.4	98770.67	99.54	
Ni	62	72	He	25.2948	ug/l	2.4	15890.73	101.18	
Cu	63	72	He	25.0432	ug/l	1.4	291466.55	100.17	
Cu	65	72	He	24.7458	ug/l	0.6	143410.73	98.98	
Zn	66	72	He	25.0238	ug/l	0.5	41074.62	100.1	
As	75	72	He	25.0784	ug/l	1.5	27013.28	100.31	
Mo	95	115	He	12.6861	ug/l	2.0	72326.06	101.49	
Mo	98	115	He	12.7685	ug/l	1.8	124405.97	102.15	
Ag	107	115	He	12.6499	ug/l	1.5	266359.13	101.2	
Ag	109	115	He	12.6621	ug/l	1.3	262564.46	101.3	
Cd	111	115	He	25.1038	ug/l	1.0	65119.72	100.42	
Cd	114	115	He	25.2596	ug/l	1.1	169494.87	101.04	
[Pb]	206	175	He	24.7174	ug/l	0.7	398430.02	98.87	
[Pb]	207	175	He	24.8938	ug/l	1.3	344371.76	99.58	
Pb	208	175	He	24.8344	ug/l	0.9	1597462.99	99.34	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	425191.62	0.7	422960.3	100.53	
Sc	45	No Gas	9436966.01	0.6	9036608.25	104.43	
Ge	72	H2	2104073.11	1.1	2029965.96	103.65	
Sc	45	He	267867.65	1.1	257908.72	103.86	
Ge	72	He	270402.27	0.7	256016.96	105.62	
In	115	He	2846453.85	1.5	2786204.64	102.16	
Lu	175	He	6902819.31	0.5	6765866.12	102.02	
Th	232	He	11500047.33	0.5	11221308.17	102.48	

Initial Calibration Blank (ICB) Report

Sample Name	ICB
File Name	007_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:39:00
Sample Type	ICB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.0958	ug/l	273.4	35975.05	
Se	77	72	H2	0.0202	ug/l	702.8	1720.43	
Se	78	72	H2	0.0184	ug/l	46.5	33.67	
Cr	52	72	He	-0.0050	ug/l	N/A	654.46	
Cr	53	72	He	-0.1313	ug/l	N/A	328.90	
Ni	60	72	He	-0.0144	ug/l	N/A	103.33	
Ni	62	72	He	0.0087	ug/l	188.0	33.33	
Cu	63	72	He	-0.0027	ug/l	N/A	340.01	
Cu	65	72	He	0.0072	ug/l	105.8	170.00	
Zn	66	72	He	-0.0354	ug/l	N/A	230.00	
As	75	72	He	0.0088	ug/l	22.8	37.67	
Mo	95	115	He	-0.0001	ug/l	N/A	35.56	
Mo	98	115	He	0.0051	ug/l	14.2	77.78	
Ag	107	115	He	0.0015	ug/l	77.0	78.89	
Ag	109	115	He	0.0001	ug/l	1209.2	45.55	
Cd	111	115	He	0.0027	ug/l	70.1	21.67	
Cd	114	115	He	0.0016	ug/l	132.5	72.67	
[Pb]	206	175	He	0.0025	ug/l	66.1	221.12	
[Pb]	207	175	He	0.0014	ug/l	43.1	182.23	
Pb	208	175	He	0.0026	ug/l	58.0	930.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	430697.89	0.5	422960.3	101.83	
Sc	45	No Gas	9265654.63	0.4	9036608.25	102.53	
Ge	72	H2	2089873.87	1.8	2029965.96	102.95	
Sc	45	He	266772.55	1.7	257908.72	103.44	
Ge	72	He	258584.08	0.8	256016.96	101	
In	115	He	2871120.18	0.5	2786204.64	103.05	
Lu	175	He	6865864.45	0.3	6765866.12	101.48	
Th	232	He	11332325.25	2.1	11221308.17	100.99	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	008_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:41:35
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	-0.0775	ug/l	N/A	32273.16	
Se	77	72	H2	-0.0230	ug/l	N/A	1674.09	
Se	78	72	H2	0.0134	ug/l	63.7	27.33	
Cr	52	72	He	-0.0028	ug/l	N/A	678.91	
Cr	53	72	He	-0.1114	ug/l	N/A	351.12	
Ni	60	72	He	-0.0083	ug/l	N/A	127.78	
Ni	62	72	He	0.0027	ug/l	747.9	30.00	
Cu	63	72	He	-0.0067	ug/l	N/A	298.89	
Cu	65	72	He	0.0009	ug/l	883.5	136.67	
Zn	66	72	He	-0.0090	ug/l	N/A	274.45	
As	75	72	He	-0.0005	ug/l	N/A	28.33	
Mo	95	115	He	-0.0019	ug/l	N/A	25.56	
Mo	98	115	He	0.0019	ug/l	112.1	45.56	
Ag	107	115	He	-0.0008	ug/l	N/A	31.11	
Ag	109	115	He	-0.0003	ug/l	N/A	37.78	
Cd	111	115	He	0.0003	ug/l	603.7	15.33	
Cd	114	115	He	0.0003	ug/l	631.9	63.50	
[Pb]	206	175	He	0.0023	ug/l	116.0	214.45	
[Pb]	207	175	He	0.0023	ug/l	56.1	192.23	
Pb	208	175	He	0.0010	ug/l	39.4	823.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	432300.25	0.3	422960.3	102.21	
Sc	45	No Gas	9223071.86	1.0	9036608.25	102.06	
Ge	72	H2	2053196.17	0.7	2029965.96	101.14	
Sc	45	He	264477.95	1.8	257908.72	102.55	
Ge	72	He	261718.50	1.0	256016.96	102.23	
In	115	He	2855893.11	2.3	2786204.64	102.5	
Lu	175	He	6792540.98	1.2	6765866.12	100.39	
Th	232	He	11425738.16	1.6	11221308.17	101.82	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name	LLICVS
File Name	009LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:44:10
Sample Type	LLICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	3.9352	ug/l	0.5	127874.11	98.38	
Se	77	72	H2	1.0031	ug/l	8.7	2093.46	-100.31	
Se	78	72	H2	1.0347	ug/l	4.8	1211.04	103.47	
Cr	52	72	He	0.4496	ug/l	4.9	4032.72	112.4	
Cr	53	72	He	0.3410	ug/l	19.1	768.91	85.25	
Ni	60	72	He	0.4394	ug/l	1.8	1842.33	109.85	
Ni	62	72	He	0.4014	ug/l	19.8	272.23	100.35	
Cu	63	72	He	0.2031	ug/l	3.4	2654.67	101.55	
Cu	65	72	He	0.2090	ug/l	6.7	1300.61	104.5	
Zn	66	72	He	1.0812	ug/l	3.9	1991.24	108.12	
As	75	72	He	0.5341	ug/l	5.0	584.01	106.82	
Mo	95	115	He	0.1004	ug/l	5.7	605.57	100.4	
Mo	98	115	He	0.1065	ug/l	4.1	1058.93	106.5	
Ag	107	115	He	0.0401	ug/l	13.7	886.70	100.25	
Ag	109	115	He	0.0455	ug/l	2.8	982.26	113.75	
Cd	111	115	He	0.0460	ug/l	6.7	133.17	115	
Cd	114	115	He	0.0433	ug/l	0.7	349.67	108.25	
[Pb]	206	175	He	0.1063	ug/l	6.8	1850.12	106.3	
[Pb]	207	175	He	0.0993	ug/l	7.3	1501.20	99.3	
Pb	208	175	He	0.0999	ug/l	4.8	7025.13	99.9	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	457238.68	1.8	422960.3	108.1	
Sc	45	No Gas	9952576.83	1.1	9036608.25	110.14	
Ge	72	H2	2085222.56	1.5	2029965.96	102.72	
Sc	45	He	256493.71	3.0	257908.72	99.45	
Ge	72	He	261299.95	2.1	256016.96	102.06	
In	115	He	2832087.53	1.1	2786204.64	101.65	
Lu	175	He	6747065.98	2.6	6765866.12	99.72	
Th	232	He	11072484.00	0.6	11221308.17	98.67	

Sample Report

Sample Name	MoSTD
File Name	010SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:46:46
Sample Type	Sample
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	1.5179	ug/l	10.5	67041.02	
Se	77	72	H2	0.0726	ug/l	22.5	1769.43	
Se	78	72	H2	0.0001	ug/l	7998.7	12.67	
Cr	52	72	He	-0.0205	ug/l	N/A	567.79	
Cr	53	72	He	-0.3471	ug/l	N/A	137.78	
Ni	60	72	He	0.0236	ug/l	29.1	260.00	
Ni	62	72	He	0.0151	ug/l	112.3	38.89	
Cu	63	72	He	0.0178	ug/l	19.1	595.57	
Cu	65	72	He	0.0260	ug/l	32.7	287.78	
Zn	66	72	He	0.5745	ug/l	11.0	1238.94	
As	75	72	He	-0.0192	ug/l	N/A	9.33	
Mo	95	115	He	50.3117	ug/l	4.6	307670.13	
Mo	98	115	He	50.4499	ug/l	3.5	527476.75	
Ag	107	115	He	-0.0008	ug/l	N/A	31.11	
Ag	109	115	He	-0.0009	ug/l	N/A	26.67	
Cd	111	115	He	0.0033	ug/l	67.1	24.67	
Cd	114	115	He	-0.0016	ug/l	N/A	54.17	
[Pb]	206	175	He	0.0015	ug/l	58.9	213.34	
[Pb]	207	175	He	0.0017	ug/l	52.2	193.34	
Pb	208	175	He	0.0008	ug/l	121.7	853.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	429301.06	0.3	422960.3	101.5	
Sc	45	No Gas	9274841.30	0.8	9036608.25	102.64	
Ge	72	H2	2124061.58	1.5	2029965.96	104.64	
Sc	45	He	276293.79	3.2	257908.72	107.13	
Ge	72	He	271331.39	1.4	256016.96	105.98	
In	115	He	3056717.42	3.2	2786204.64	109.71	
Lu	175	He	7146119.72	0.9	6765866.12	105.62	
Th	232	He	11673396.07	2.2	11221308.17	104.03	

Prep Blank (PB) Report

Sample Name	KQ2412724-03
File Name	011_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:55:10
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	1.8514	ug/l	6.0	77878.09	
Se	77	72	H2	0.0885	ug/l	124.3	1705.76	
Se	78	72	H2	0.0020	ug/l	130.2	14.33	
Cr	52	72	He	0.0835	ug/l	11.8	1336.73	
Cr	53	72	He	-0.0500	ug/l	N/A	413.34	
Ni	60	72	He	0.0454	ug/l	34.0	337.78	
Ni	62	72	He	0.0599	ug/l	51.7	65.56	
Cu	63	72	He	0.0159	ug/l	27.1	560.01	
Cu	65	72	He	0.0182	ug/l	7.9	236.67	
Zn	66	72	He	0.7034	ug/l	8.5	1415.62	
As	75	72	He	-0.0006	ug/l	N/A	28.67	
Mo	95	115	He	0.0227	ug/l	6.3	170.00	
Mo	98	115	He	0.0165	ug/l	34.4	193.34	
Ag	107	115	He	0.0004	ug/l	191.6	57.78	
Ag	109	115	He	-0.0003	ug/l	N/A	37.78	
Cd	111	115	He	-0.0007	ug/l	N/A	13.00	
Cd	114	115	He	0.1086	ug/l	1.5	812.19	Flag
[Pb]	206	175	He	0.0064	ug/l	31.5	285.56	
[Pb]	207	175	He	0.0059	ug/l	49.4	245.56	
Pb	208	175	He	0.0058	ug/l	14.1	1147.80	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	449536.11	1.4	422960.3	106.28	
Sc	45	No Gas	9378241.29	3.1	9036608.25	103.78	
Ge	72	H2	2041199.50	2.5	2029965.96	100.55	
Sc	45	He	272258.10	0.9	257908.72	105.56	
Ge	72	He	264979.44	0.8	256016.96	103.5	
In	115	He	2927850.74	1.7	2786204.64	105.08	
Lu	175	He	6919800.56	0.5	6765866.12	102.28	
Th	232	He	11634208.58	1.1	11221308.17	103.68	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2412724-04
File Name	012_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 09:57:45
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	6	No Gas	205.3352	ug/l	3.2	4639277.45	200	102.67	
Se	77	72	H2	50.7347	ug/l	2.5	21345.00	50	101.47	
Se	78	72	H2	52.0996	ug/l	1.2	60896.53	50	104.2	
Cr	52	72	He	20.8887	ug/l	0.0	160266.24	20	104.44	
Cr	53	72	He	20.6094	ug/l	2.0	20086.18	20	103.05	
Ni	60	72	He	52.7366	ug/l	1.1	208032.37	50	105.47	
Ni	62	72	He	52.3461	ug/l	1.9	32681.01	50	104.69	
Cu	63	72	He	25.8816	ug/l	0.5	299645.47	25	103.53	
Cu	65	72	He	25.7585	ug/l	1.2	148486.70	25	103.03	
Zn	66	72	He	49.5418	ug/l	0.6	80600.21	50	99.08	
As	75	72	He	51.4887	ug/l	1.1	55139.80	50	102.98	
Mo	95	115	He	52.4150	ug/l	1.0	299071.98	50	104.83	
Mo	98	115	He	52.7463	ug/l	0.3	514454.91	50	105.49	
Ag	107	115	He	5.1929	ug/l	1.7	109492.25	5	103.86	
Ag	109	115	He	5.2391	ug/l	0.4	108793.55	5	104.78	
Cd	111	115	He	5.3756	ug/l	1.7	13970.69	5	107.51	
Cd	114	115	He	5.1809	ug/l	2.0	34849.60	5	103.62	
[Pb]	206	175	He	50.7684	ug/l	1.5	810022.95	50	101.54	
[Pb]	207	175	He	51.7680	ug/l	1.1	708887.37	50	103.54	
Pb	208	175	He	54.4472	ug/l	1.0	3466900.66	50	108.89	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	439015.73	1.2	422960.3	103.8	
Sc	45	No Gas	9400722.41	3.2	9036608.25	104.03	
Ge	72	H2	2103711.10	1.1	2029965.96	103.63	
Sc	45	He	264321.13	1.5	257908.72	102.49	
Ge	72	He	268990.09	0.9	256016.96	105.07	
In	115	He	2849512.10	1.1	2786204.64	102.27	
Lu	175	He	6834859.17	1.1	6765866.12	101.02	
Th	232	He	11353727.75	1.0	11221308.17	101.18	

Reference Sample Report

Sample Name	K2408463-001
File Name	013_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 10:00:18
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	18697.5417	ug/l	3.5	419627645.55	
Se	77	72	H2	0.5808	ug/l	13.0	1950.78	
Se	78	72	H2	0.3900	ug/l	2.0	468.68	
Cr	52	72	He	42.9690	ug/l	0.1	284034.10	
Cr	53	72	He	42.8124	ug/l	0.4	35603.29	
Ni	60	72	He	32.8795	ug/l	0.1	112060.77	
Ni	62	72	He	32.6829	ug/l	1.4	17641.42	
Cu	63	72	He	102.6505	ug/l	0.6	1025085.96	
Cu	65	72	He	102.1960	ug/l	1.4	508244.88	
Zn	66	72	He	133.7007	ug/l	0.9	187335.99	
As	75	72	He	24.9461	ug/l	1.1	23078.61	
Mo	95	115	He	2.2037	ug/l	2.1	11117.12	
Mo	98	115	He	2.2490	ug/l	1.6	19363.59	
Ag	107	115	He	0.5038	ug/l	3.4	9389.40	
Ag	109	115	He	0.5113	ug/l	4.8	9381.60	
Cd	111	115	He	0.2371	ug/l	3.2	555.01	
Cd	114	115	He	0.3393	ug/l	2.5	2059.13	
[Pb]	206	175	He	14.5090	ug/l	1.9	208880.86	
[Pb]	207	175	He	14.3354	ug/l	1.8	177139.19	
Pb	208	175	He	14.3658	ug/l	1.4	825617.24	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	439156.43	0.9	422960.3	103.83	
Sc	45	No Gas	9481554.62	1.7	9036608.25	104.92	
Ge	72	H2	2105793.53	0.8	2029965.96	103.74	
Sc	45	He	241520.41	7.5	257908.72	93.65	
Ge	72	He	232301.02	8.3	256016.96	90.74	
In	115	He	2510505.83	8.8	2786204.64	90.1	
Lu	175	He	6168975.31	8.1	6765866.12	91.18	
Th	232	He	10309076.72	8.0	11221308.17	91.87	

Duplicate Sample Report

Sample Name	KQ2412724-01
File Name	014_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 10:02:52
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	013_
Default Text	ARRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	339994653.16	16576.8838	ug/l	3.6	12.02	
Se	77	H2	1892.11	0.6280	ug/l	37.5		< 5X MRL
Se	78	H2	445.01	0.3848	ug/l	7.5		< 5X MRL
Cr	52	He	230076.72	31.5855	ug/l	0.3	30.54	Dup Fail
Cr	53	He	28561.35	31.0662	ug/l	0.6	31.8	Dup Fail
Ni	60	He	98653.42	26.2799	ug/l	0.4	22.31	Dup Fail
Ni	62	He	15629.40	26.3042	ug/l	3.1	21.63	Dup Fail
Cu	63	He	823683.82	74.8836	ug/l	0.3	31.28	Dup Fail
Cu	65	He	410792.85	74.9846	ug/l	0.1	30.72	Dup Fail
Zn	66	He	183559.29	118.9149	ug/l	0.9	11.71	
As	75	He	26320.87	25.8324	ug/l	0.3	3.49	
Mo	95	He	11967.68	2.1257	ug/l	1.5	3.61	
Mo	98	He	21006.63	2.1871	ug/l	2.7	2.79	
Ag	107	He	6137.84	0.2940	ug/l	6.0	52.6	Dup Fail
Ag	109	He	6026.68	0.2931	ug/l	3.8	54.24	Dup Fail
Cd	111	He	565.18	0.2157	ug/l	0.6	9.48	
Cd	114	He	2200.98	0.3240	ug/l	2.9	4.62	
[Pb]	206	He	179392.89	11.4376	ug/l	1.3	23.67	Dup Fail
[Pb]	207	He	150785.10	11.2006	ug/l	0.9	24.55	Dup Fail
Pb	208	He	705114.36	11.2648	ug/l	1.2	24.2	Dup Fail

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	401219.40	1.8	422960.3	94.86	59.55	125.44	
Sc	45	No Gas	8724680.21	3.3	9036608.25	96.55	59.55	125.44	
Ge	72	H2	2023751.38	1.8	2029965.96	99.69	59.55	125.44	
Sc	45	He	259410.35	1.0	257908.72	100.58	59.55	125.44	
Ge	72	He	255770.67	0.9	256016.96	99.9	59.55	125.44	
In	115	He	2803703.94	2.1	2786204.64	100.63	59.55	125.44	
Lu	175	He	6713596.26	1.1	6765866.12	99.23	59.55	125.44	
Th	232	He	11444866.08	0.5	11221308.17	101.99	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2412724-02

File Name 015_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082724A1.b

Acq Time 2024-08-27 10:05:26

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 013_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	18187.8212	ug/l	4.4	362315381.16	800	-63.72	Flag
Se	77	H2	191.8521	ug/l	0.4	72051.59	200	95.64	
Se	78	H2	195.6673	ug/l	0.5	217004.66	200	97.64	
Cr	52	He	109.1661	ug/l	1.3	753973.03	80	82.75	
Cr	53	He	108.0812	ug/l	0.6	93373.93	80	81.59	
Ni	60	He	221.4111	ug/l	1.1	788700.27	200	94.27	
Ni	62	He	219.4249	ug/l	0.8	123707.58	200	93.37	
Cu	63	He	208.1638	ug/l	1.7	2175057.27	100	105.51	
Cu	65	He	197.6691	ug/l	1.5	1028722.32	100	95.47	
Zn	66	He	317.8535	ug/l	1.2	465772.69	200	92.08	
As	75	He	223.3102	ug/l	0.1	216009.28	200	99.18	
Mo	95	He	193.6371	ug/l	1.9	1050867.04	200	95.72	
Mo	98	He	212.0449	ug/l	0.7	1967623.88	200	104.9	
Ag	107	He	18.4931	ug/l	1.5	370847.45	20	89.95	
Ag	109	He	18.7355	ug/l	1.6	369961.96	20	91.12	
Cd	111	He	19.8127	ug/l	2.0	48943.47	20	97.88	
Cd	114	He	19.2955	ug/l	2.2	123306.70	20	94.78	
[Pb]	206	He	217.9076	ug/l	1.3	3345440.15	200	101.7	
[Pb]	207	He	220.4205	ug/l	1.8	2903927.94	200	103.04	
Pb	208	He	217.9427	ug/l	1.5	13350986.42	200	101.79	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	389721.20	1.8	422960.3	92.14	
Sc	45	No Gas	8619882.16	0.7	9036608.25	95.39	
Ge	72	H2	1996256.73	0.7	2029965.96	98.34	
Sc	45	He	246742.93	0.5	257908.72	95.67	
Ge	72	He	243051.13	1.3	256016.96	94.94	
In	115	He	2710889.71	1.9	2786204.64	97.3	
Lu	175	He	6577253.21	1.2	6765866.12	97.21	
Th	232	He	11265009.00	0.8	11221308.17	100.39	

Sample Report

Sample Name	K2408463-002
File Name	016SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 10:07:55
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	23680.3943	ug/l	3.8	468092754.73	
Se	77	72	H2	0.8885	ug/l	32.3	1915.11	
Se	78	72	H2	0.4273	ug/l	6.0	474.01	
Cr	52	72	He	46.2918	ug/l	1.1	316893.49	
Cr	53	72	He	45.8220	ug/l	0.9	39429.14	
Ni	60	72	He	37.8462	ug/l	1.8	133571.60	
Ni	62	72	He	38.0352	ug/l	3.3	21245.39	
Cu	63	72	He	94.0466	ug/l	1.4	972975.17	
Cu	65	72	He	93.9561	ug/l	1.2	484136.82	
Zn	66	72	He	183.5420	ug/l	1.5	266357.46	
As	75	72	He	30.0060	ug/l	1.6	28752.45	
Mo	95	115	He	2.8970	ug/l	1.8	15298.16	
Mo	98	115	He	2.8927	ug/l	2.6	26077.09	
Ag	107	115	He	0.1443	ug/l	4.7	2851.38	
Ag	109	115	He	0.1371	ug/l	4.5	2668.01	
Cd	111	115	He	0.4795	ug/l	1.6	1163.04	
Cd	114	115	He	0.5868	ug/l	1.9	3695.41	
[Pb]	206	175	He	13.1920	ug/l	1.5	200894.61	
[Pb]	207	175	He	13.0526	ug/l	1.3	170601.02	
Pb	208	175	He	13.0850	ug/l	1.6	795197.99	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	386786.23	0.9	422960.3	91.45	
Sc	45	No Gas	8489138.83	1.5	9036608.25	93.94	
Ge	72	H2	1948246.17	0.1	2029965.96	95.97	
Sc	45	He	243790.02	1.0	257908.72	94.53	
Ge	72	He	240601.03	1.0	256016.96	93.98	
In	115	He	2631629.85	0.8	2786204.64	94.45	
Lu	175	He	6519526.27	1.4	6765866.12	96.36	
Th	232	He	11392454.83	1.4	11221308.17	101.53	

Sample Report

Sample Name	K2408463-003
File Name	017SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 10:10:29
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	21917.8853	ug/l	4.4	428683307.41	
Se	77	72	H2	0.9629	ug/l	13.1	1957.12	
Se	78	72	H2	0.6007	ug/l	3.0	667.02	
Cr	52	72	He	44.2115	ug/l	0.4	303770.85	
Cr	53	72	He	44.1766	ug/l	1.5	38161.90	
Ni	60	72	He	34.4797	ug/l	1.1	122147.62	
Ni	62	72	He	34.6818	ug/l	1.9	19447.71	
Cu	63	72	He	126.6437	ug/l	0.6	1314847.17	
Cu	65	72	He	126.4084	ug/l	0.6	653673.59	
Zn	66	72	He	161.7861	ug/l	1.4	235693.06	
As	75	72	He	27.1588	ug/l	1.5	26121.26	
Mo	95	115	He	3.2474	ug/l	0.7	17345.68	
Mo	98	115	He	3.2610	ug/l	2.0	29735.29	
Ag	107	115	He	0.3611	ug/l	6.6	7150.47	
Ag	109	115	He	0.3688	ug/l	2.3	7193.82	
Cd	111	115	He	0.3021	ug/l	2.3	746.35	
Cd	114	115	He	0.4086	ug/l	1.9	2620.71	
[Pb]	206	175	He	17.9456	ug/l	1.0	276000.83	
[Pb]	207	175	He	17.6764	ug/l	2.1	233300.81	
Pb	208	175	He	17.6580	ug/l	1.5	1083729.54	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	382839.74	0.7	422960.3	90.51	
Sc	45	No Gas	8442613.83	1.6	9036608.25	93.43	
Ge	72	H2	1963791.59	0.8	2029965.96	96.74	
Sc	45	He	245108.25	1.7	257908.72	95.04	
Ge	72	He	241467.72	1.2	256016.96	94.32	
In	115	He	2662461.69	1.7	2786204.64	95.56	
Lu	175	He	6585421.27	1.2	6765866.12	97.33	
Th	232	He	11248663.58	1.4	11221308.17	100.24	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 018_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\082724A1.b

Acq Time 2024-08-27 10:13:03

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	276.2262	ug/l	4.5	5172327.85	110.49	CCV Failed
Se	77	72	H2	24.1299	ug/l	2.0	10470.88	96.52	
Se	78	72	H2	24.8941	ug/l	1.2	27562.55	98.58	
Cr	52	72	He	25.2127	ug/l	0.8	171347.06	100.85	
Cr	53	72	He	24.8575	ug/l	1.8	21386.57	99.43	
Ni	60	72	He	25.2920	ug/l	0.9	88527.89	101.17	
Ni	62	72	He	25.8477	ug/l	2.8	14318.24	103.39	
Cu	63	72	He	25.5371	ug/l	0.8	262099.17	102.15	
Cu	65	72	He	25.6833	ug/l	1.0	131255.63	102.73	
Zn	66	72	He	25.0720	ug/l	1.2	36289.48	100.29	
As	75	72	He	25.1629	ug/l	1.3	23902.33	100.65	
Mo	95	115	He	12.3258	ug/l	2.0	66133.00	98.61	
Mo	98	115	He	12.4123	ug/l	1.9	113809.30	99.3	
Ag	107	115	He	12.2452	ug/l	2.3	242630.39	97.96	
Ag	109	115	He	12.4656	ug/l	2.5	243233.26	99.72	
Cd	111	115	He	24.5640	ug/l	2.1	59959.81	98.26	
Cd	114	115	He	24.6961	ug/l	2.8	155924.24	98.78	
[Pb]	206	175	He	25.0909	ug/l	1.4	381129.37	100.36	
[Pb]	207	175	He	25.1451	ug/l	1.3	327801.31	100.58	
Pb	208	175	He	25.1419	ug/l	1.4	1523990.03	100.57	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	364552.70	1.0	422960.3	86.19	
Sc	45	No Gas	8061723.85	1.0	9036608.25	89.21	
Ge	72	H2	1992347.00	1.2	2029965.96	98.15	
Sc	45	He	232244.12	1.2	257908.72	90.05	
Ge	72	He	238459.30	0.9	256016.96	93.14	
In	115	He	2679045.34	2.2	2786204.64	96.15	
Lu	175	He	6505772.38	1.8	6765866.12	96.16	
Th	232	He	11049182.75	1.0	11221308.17	98.47	

8/27/24

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	019_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 10:20:19
Sample Type	CCV
Comment	—
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	248.6507	ug/l	5.6	5100105.35	99.46	
Se	77	72	H2	24.8978	ug/l	1.0	10521.92	99.59	
Se	78	72	H2	25.4802	ug/l	1.7	27605.29	101.92	
Cr	52	72	He	25.3168	ug/l	2.3	171639.71	101.27	
Cr	53	72	He	25.3418	ug/l	3.6	21742.55	101.37	
Ni	60	72	He	25.6249	ug/l	1.2	89474.79	102.5	
Ni	62	72	He	25.7651	ug/l	1.9	14241.51	103.06	
Cu	63	72	He	25.6582	ug/l	1.2	262722.20	102.63	
Cu	65	72	He	25.4038	ug/l	1.6	129528.52	101.62	
Zn	66	72	He	25.2661	ug/l	1.8	36480.98	101.06	
As	75	72	He	25.3866	ug/l	1.0	24058.89	101.55	
Mo	95	115	He	12.2995	ug/l	1.3	65112.34	98.4	
Mo	98	115	He	12.3909	ug/l	0.6	112111.70	99.13	
Ag	107	115	He	12.5283	ug/l	1.9	244923.66	100.23	
Ag	109	115	He	12.6702	ug/l	0.9	243962.93	101.36	
Cd	111	115	He	24.8283	ug/l	1.1	59798.87	99.31	
Cd	114	115	He	24.8203	ug/l	1.4	154634.27	99.28	
[Pb]	206	175	He	24.9825	ug/l	0.8	373244.10	99.93	
[Pb]	207	175	He	25.2826	ug/l	0.8	324181.07	101.13	
Pb	208	175	He	25.2796	ug/l	0.9	1507185.16	101.12	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	399011.22	0.9	422960.3	94.34	
Sc	45	No Gas	8615619.10	0.9	9036608.25	95.34	
Ge	72	H2	1949509.50	0.7	2029965.96	96.04	
Sc	45	He	234557.17	0.9	257908.72	90.95	
Ge	72	He	237896.81	0.7	256016.96	92.92	
In	115	He	2642928.79	1.7	2786204.64	94.86	
Lu	175	He	6398099.19	0.8	6765866.12	94.56	
Th	232	He	11100444.00	0.5	11221308.17	98.92	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	020_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\082724A1.b
Acq Time	2024-08-27 10:22:53
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	-0.0647	ug/l	N/A	28827.20	
Se	77	72	H2	-0.0674	ug/l	N/A	2047.47	
Se	78	72	H2	0.0009	ug/l	354.4	15.67	
Cr	52	72	He	-0.0059	ug/l	N/A	571.12	
Cr	53	72	He	-0.1103	ug/l	N/A	306.67	
Ni	60	72	He	-0.0061	ug/l	N/A	118.89	
Ni	62	72	He	-0.0173	ug/l	N/A	15.56	
Cu	63	72	He	-0.0020	ug/l	N/A	306.67	
Cu	65	72	He	0.0097	ug/l	57.4	162.22	
Zn	66	72	He	0.0097	ug/l	247.8	264.45	
As	75	72	He	0.0090	ug/l	35.4	33.33	
Mo	95	115	He	0.0017	ug/l	324.0	41.11	
Mo	98	115	He	0.0062	ug/l	44.4	78.89	
Ag	107	115	He	-0.0006	ug/l	N/A	31.11	
Ag	109	115	He	0.0013	ug/l	59.1	62.22	
Cd	111	115	He	0.0016	ug/l	152.2	16.67	
Cd	114	115	He	0.0002	ug/l	684.9	55.83	
[Pb]	206	175	He	0.0047	ug/l	102.5	231.12	
[Pb]	207	175	He	0.0018	ug/l	231.6	168.89	
Pb	208	175	He	0.0018	ug/l	160.9	794.46	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	382576.51	0.9	422960.3	90.45	
Sc	45	No Gas	8066178.85	1.4	9036608.25	89.26	
Ge	72	H2	2543383.99	22.0	2029965.96	125.29	
Sc	45	He	222339.15	1.1	257908.72	86.21	
Ge	72	He	227734.90	0.6	256016.96	88.95	
In	115	He	2552918.94	0.8	2786204.64	91.63	
Lu	175	He	6202597.53	1.5	6765866.12	91.67	
Th	232	He	10784331.92	2.1	11221308.17	96.11	

CVAA Mercury Soil Data Review Form

K-CVAA-04

Element:	Hg		
Analysis Lot #:	082224A HG4		
Starlims #:	851547		
Cal. STD/CCV Source:	HG4-12-G		
Pipette IDs:	HG-43188965/HG-39591307		
16mL Tube Lot #:	P7664876		
KMnO4:	HG4-12-B	Expiration Date:	8/8/2025
NH2OH-HCl/NaCl	HG4-12-D	Expiration Date:	8/8/2025
SnCl2/HCl:	HG4-11-I	Expiration Date:	7/29/2024

Service Request Numbers:
K2408108, K2408109, K2408496, K2408597, K2408365, K2408415, K2408463, K2408502, K2408564, K2408331, K2408337, K2408565, K2408568, K2408571

	Yes	No	NA
1) Appropriate standardization completed	X		
2) ICV within 10% of true value	X		
3) CCVs in control (+/- 10%)	X		
4) CCBs and or ICBs below MRL	X		
5) CCV/CCB check run every 10 samples	X		
6) All reported samples within calibration range	X		
7) Percent relative errors in control	X		
8) Calculations correct	X		

Comments:

Data reviewed against service request(s) to ensure no samples were omitted: LL (Initials)

Primary Reviewed By: L L Date: 8/22/24

Secondary Reviewed By: [signature] Date: 8/22/24

Data Review Form

Instrument ID#: **K-CVAA-04**
DataFile Name: **R:\ICP\WIP\DATA\K-CVAA-04 (M-7600)\082224A HG4.csv**
RUNNO: **851547**

K2408108

No exceptions to report.

K2408109

No exceptions to report.

K2408331

No exceptions to report.

K2408337

No exceptions to report.

K2408365

No exceptions to report.

K2408415

No exceptions to report.

K2408463

No exceptions to report.

K2408496

No exceptions to report.

K2408502

No exceptions to report.

K2408564

No exceptions to report.

K2408565

No exceptions to report.

K2408568

No exceptions to report.

Primary Approver: 8/22/24
Secondary Approver: 8/22/24

Data Review Form

Instrument ID#: **K-CVAA-04**
DataFile Name: **R:\ICP\WIP\DATA\K-CVAA-04 (M-7600)\082224A HG4.csv**
RUNNO: **851547**

K2408571

No exceptions to report.

K2408597

No exceptions to report.

CVAA Hg ANALYTICAL WORKSHEET

Method: 7471	Cal. Inter. Std* (100ppb): HG4-12-G 2nd Source Inter Std** (1ppm): HG4-11-N

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
1	Cal. Blk.	0.000	~	~		
2	Std 0.2*	0.200	~	(0.1-50mL)		
3	Std 0.5*	0.500	~	(0.25-50mL)		
4	Std 1.0*	1.000	~	(0.5-50mL)		
5	Std 5.0*	5.000	~	(2.5-50mL)		
6	Std 10.0*	10.000	~	(5.0-50mL)		
7	ICV1**	4.67	~	93%		
8	ICB1	-0.009	~			
9	LLICV1*	0.208	~	104%		
10	CCV1*	4.764	~	95%		
11	CCB1	-0.004	~			
12	KQ2412793-03	-0.014	~			
13	KQ2412793-04	4.932	~	99%		
14	K2408108-003	0.271	~			
15	K2408108-006	0.379	~			
16	K2408108-009	1.923	~			
17	K2408109-003	0.449	~			
18	K2408109-006	0.283	~			
19	K2408109-009	0.278	~			
20	K2408496-003	0.424	~			
21	KQ2412793-01	0.429	~			
22	CCV2	4.778	~	96%		
23	CCB2	-0.002	~			
24	KQ2412793-02	4.640	~	84%		
25	K2408496-003A	5.316	~	98%		
26	K2408496-006	0.288	~			
27	K2408496-009	0.194	~			
28	K2408597-003	0.450	~			
29	K2408597-006	0.351	~			
30	K2408597-009	0.331	~			
31	KQ2412723-03	-0.011	~			
32	KQ2412723-04	4.682	~	94%		

Comments:

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
33	K2408365-001	0.103	~			
34	CCV3	4.740	~	95%		
35	CCB3	-0.004	~			
36	K2408415-001	0.241	~			
37	K2408415-002	0.273	~			
38	K2408415-003	0.158	~			
39	K2408415-004	0.263	~			
40	K2408415-005	0.176	~			
41	K2408463-001	0.275	~			
42	KQ2412723-01	0.237	~			
43	KQ2412723-02	4.982	~	94%		
44	K2408463-001A	5.425	~	103%		
45	K2408463-002	0.313	~			
46	CCV4	5.089	~	102%		
47	CCB4	-0.004	~			
48	K2408463-003	0.300	~			
49	K2408502-001	0.878	~			
50	KQ2413026-01	0.084	~			
51	KQ2413026-02	4.731	~	95%		
52	K2408564-001	0.141	~			
53	KQ2413026-03	0.154	~			
54	KQ2413026-04	4.940	~	99%		
55	K2408564-001A	5.081	~	102%		
56	KQ2412533-03	-0.015	~			
57	KQ2412533-04	4.824	~	102%		
58	CCV5	4.736	~	95%		
59	CCB5	-0.003	~			
60	~~K2408331-001~~	~~0.387~~	~			
61	~~KQ2412533-01~~	~~0.534~~	~			
62	~~KQ2412533-02~~	~~2.689~~	~			
63	~~K2408337-001~~	~~1.216~~	~			
64	~~K2408331-001A~~	~~4.493~~	~			

Comments: AA 8/22/24

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	80-120%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	N/A
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCS	0.5mg/kg	0.02 mg/kg	80-120%	80-120%	20%	+/- 20%
7471B Tissue Dorm	0.316mg/kg	0.02 mg/kg	76-126%	80-120%	20%	MSA

[082224A HG4 7471] HG2.XLS

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
65	K2408331-002	0.577	~			
66	KQ2412533-01	0.549	~			
67	KQ2412533-02	5.061	~	89%		
68	K2408331-002A	4.560	~	80%		
69	K2408337-001	1.440	~			
70	CCV6	4.543	~	91%		
71	CCB6	-0.005	~			
72	KQ2412899-04	0.003	~			
73	KQ2412899-05	4.399	~	88%		
74	KQ2412899-06	5.028	20	92%		
75	K2408565-013	0.133	~			
76	KQ2412899-01	0.134	~			
77	KQ2412899-02	4.422	~	86%		
78	KQ2412899-03	4.484	~	87%		
79	K2408565-013A	4.796	~	93%		
80	K2408565-009	0.159	~			
81	K2408565-010	0.144	~			
82	CCV7	4.692	~	94%		
83	CCB7	-0.005	~			
84	K2408565-011	0.168	~			
85	K2408565-012	0.144	~			
86	K2408568-009	0.228	~			
87	K2408568-010	0.186	~			
88	K2408568-011	1.930	~			
89	K2408568-012	1.657	~			
90	K2408571-009	0.712	~			
91	K2408571-010	0.219	~			
92	K2408571-011	0.156	~			
93	CCV8	4.547	~	91%		
94	CCB8	-0.006	~			
95						
96						

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	80-120%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	N/A
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCS	0.5mg/kg	0.02 mg/kg	80-120%	80-120%	20%	+/- 20%
7471B Tissue Dorm	0.316mg/kg	0.02 mg/kg	76-126%	80-120%	20%	MSA

Report Generated By Teledyne Leeman QuickTrace

Analyst: alkls.nouser

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\082224A HG4.wszf

Creation Date: 8/22/2024 7:08:59 AM

Comment:

Results

Sample Name / Aliq. Vol. / Diln. Vol / DF	Type / Spike Vol	Conc (ug/L) / % Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
Calibration Blank	STD	0.000	304	5.00				
1.0000	N/A							
Replicates	296.9	308.0	322.6	287.3				
Standard #1 (0.2 ug/L)	STD	0.200	1937	0.98	-10.27%			
1.0000	N/A							
Replicates	1913.8	1931.8	1957.1	1947.3				
Standard #2 (0.5 ug/L)	STD	0.500	4617	2.76	-5.25%			
1.0000	N/A							
Replicates	4674.2	4716.8	4644.8	4430.6				
Standard #3 (1 ug/L)	STD	1.000	9546	1.96	1.52%			
1.0000	N/A							
Replicates	9793.6	9585.7	9411.4	9392.7				
Standard #4 (5 ug/L)	STD	5.000	47113	0.99	2.83%			
1.0000	N/A							
Replicates	46693.1	46778.0	47286.3	47695.0				
Standard #5 (10 ug/L)	STD	10.000	90702	1.58	-0.71%			
1.0000	N/A							
Replicates	90858.5	91733.4	91590.9	88625.8				

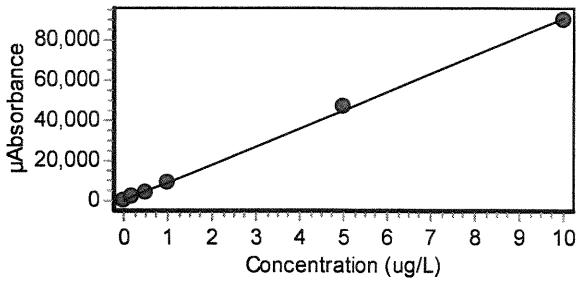
Calibration

Equation: Abs = 9104.101x + 303.696

R2: 0.99962 RSE: 6.93%

SEE: 853.4986

Flags:



ICV1	ICV	4.670	42816	1.26				
1.0000	93.39							
Replicates	43061.9	43202.5	42974.9	42024.7				
ICB1	ICB	-0.009	226	23.18				
1.0000	N/A							
Replicates	225.2	203.0	230.2	246.5				
LLICV1	CRDL	0.208	2197	2.93				
1.0000	104.00							
Replicates	2138.5	2170.1	2214.7	2266.1				

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type / Spike Vol	Conc (ug/L) / % Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
CCV1				CCV	4.764	43677	1.04			
			1.0000		95.28					
Replicates			43734.6	44008.2	43942.2	43023.4				
CCB1				CCB	-0.004	271	21.54			
			1.0000		N/A					
Replicates			267.5	280.2	263.5	271.3				
KQ2412793-03				UNK	-0.014	174	7.49			
			1.0000		N/A					
Replicates			163.0	182.0	182.1	168.1				
KQ2412793-04				UNK	4.932	45207	1.02			
			1.0000		N/A					
Replicates			44827.2	44829.8	45428.6	45743.9				
K2408108-003				UNK	0.271	2769	1.00			
			1.0000		N/A					
Replicates			2764.6	2799.9	2769.7	2740.0				
K2408108-006				UNK	0.379	3753	1.24			
			1.0000		N/A					
Replicates			3772.8	3774.4	3774.5	3688.4				
K2408108-009				UNK	1.923	17814	1.39			
			1.0000		N/A					
Replicates			17896.8	17990.8	17913.9	17455.3				
K2408109-003				UNK	0.449	4389	1.20			
			1.0000		N/A					
Replicates			4377.7	4427.9	4427.0	4324.9				
K2408109-006				UNK	0.283	2881	0.24			
			1.0000		N/A					
Replicates			2873.0	2887.8	2882.3	2880.8				
K2408109-009				UNK	0.278	2834	0.53			
			1.0000		N/A					
Replicates			2823.8	2826.4	2853.6	2832.6				
K2408496-003				UNK	0.424	4167	1.11			
			1.0000		N/A					
Replicates			4117.7	4189.1	4214.3	4147.0				
KQ2412793-01				UNK	0.429	4206	1.31			
			1.0000		N/A					
Replicates			4231.2	4234.3	4228.8	4129.5				
CCV2				CCV	4.778	43803	0.86			
			1.0000		95.56					
Replicates			43833.0	44091.4	44018.8	43269.6				
CCB2				CCB	-0.002	283	47.16			
			1.0000		N/A					
Replicates			279.1	283.0	296.5	273.9				

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
KQ2412793-02				UNK		4.640		42545	3.03				
	1.0000				N/A								
Replicates	42917.1	41634.6	41438.1	44191.3									
K2408496-003A				UNK		5.316		48704	1.02				
	1.0000				N/A								
Replicates	48718.6	49072.7	49021.5	48001.8									
K2408496-006				UNK		0.288		2928	1.13				
	1.0000				N/A								
Replicates	2939.9	2933.7	2952.7	2884.7									
K2408496-009				UNK		0.194		2067	1.67				
	1.0000				N/A								
Replicates	2032.8	2060.6	2070.9	2104.1									
K2408597-003				UNK		0.450		4405	1.95				
	1.0000				N/A								
Replicates	4291.0	4428.5	4479.3	4419.3									
K2408597-006				UNK		0.351		3503	1.38				
	1.0000				N/A								
Replicates	3540.9	3516.0	3515.8	3439.0									
K2408597-009				UNK		0.331		3313	2.42				
	1.0000				N/A								
Replicates	3240.4	3263.5	3353.9	3394.0									
KQ2412723-03				UNK		-0.011		200	11.59				
	1.0000				N/A								
Replicates	181.9	206.6	207.3	203.4									
KQ2412723-04				UNK		4.682		42926	0.97				
	1.0000				N/A								
Replicates	43072.3	43214.4	43101.4	42314.0									
K2408365-001				UNK		0.103		1243	2.60				
	1.0000				N/A								
Replicates	1263.7	1261.0	1236.5	1211.5									
CCV3				CCV		4.740		43456	1.40				
	1.0000				94.80								
Replicates	43787.2	43857.5	43615.0	42564.5									
CCB3				CCB		-0.004		265	28.15				
	1.0000				N/A								
Replicates	275.6	252.7	258.2	272.2									
K2408415-001				UNK		0.241		2501	2.31				
	1.0000				N/A								
Replicates	2520.2	2521.8	2537.6	2426.1									
K2408415-002				UNK		0.273		2791	2.55				
	1.0000				N/A								
Replicates	2748.0	2797.8	2878.5	2740.6									

Sample Name	Type	Conc (ug/L)	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
Aliq. Vol.	Diln. Vol	DF	Spike Vol	% Recovery				
K2408415-003	UNK	0.158	1744	1.90				
	1.0000		N/A					
Replicates	1711.0	1741.3	1778.0	1745.7				
K2408415-004	UNK	0.263	2694	0.43				
	1.0000		N/A					
Replicates	2679.4	2696.2	2702.9	2698.2				
K2408415-005	UNK	0.176	1903	1.79				
	1.0000		N/A					
Replicates	1881.7	1878.3	1911.3	1939.5				
K2408463-001	UNK	0.275	2807	1.45				
	1.0000		N/A					
Replicates	2827.0	2820.6	2828.1	2753.1				
KQ2412723-01	UNK	0.237	2463	1.14				
	1.0000		N/A					
Replicates	2450.3	2473.5	2491.0	2435.2				
KQ2412723-02	UNK	4.982	45661	1.01				
	1.0000		N/A					
Replicates	45656.1	45967.5	46004.7	45017.0				
K2408463-001A	UNK	5.425	49689	0.93				
	1.0000		N/A					
Replicates	49765.0	49994.8	49979.5	49015.3				
K2408463-002	UNK	0.313	3153	7.25				
	1.0000		N/A					
Replicates	3313.5	3277.9	3160.5	2859.0				
CCV4	CCV	5.089	46635	1.22				
	1.0000		101.78					
Replicates	45989.5	46445.5	46768.5	47335.5				
CCB4	CCB	-0.004	271	18.44				
	1.0000		N/A					
Replicates	270.5	267.5	266.9	279.9				
K2408463-003	UNK	0.300	3033	1.37				
	1.0000		N/A					
Replicates	3027.9	3060.6	3062.3	2982.8				
K2408502-001	UNK	0.878	8299	1.83				
	1.0000		N/A					
Replicates	8321.5	8401.1	8387.1	8086.5				
KQ2413026-01	UNK	0.084	1070	1.16				
	1.0000		N/A					
Replicates	1075.6	1070.5	1075.6	1056.8				
KQ2413026-02	UNK	4.731	43378	0.91				
	1.0000		N/A					
Replicates	43410.8	43657.2	43630.8	42814.8				

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
K2408564-001				UNK		0.141		1588	1.37			
		1.0000					N/A					
Replicates	1582.7	1600.1	1604.4	1566.1								
KQ2413026-03				UNK		0.154		1705	1.45			
		1.0000					N/A					
Replicates	1681.2	1713.5	1728.5	1698.1								
KQ2413026-04				UNK		4.940		45277	0.95			
		1.0000					N/A					
Replicates	45277.8	45602.2	45555.9	44673.4								
K2408564-001A				UNK		5.081		46562	7.84			
		1.0000					N/A					
Replicates	50333.1	48562.3	45186.1	42166.3								
KQ2412533-03				UNK		-0.015		170	11.47			
		1.0000					N/A					
Replicates	167.3	151.6	174.1	188.4								
KQ2412533-04				UNK		4.824		44224	1.47			
		1.0000					N/A					
Replicates	43396.0	44038.8	44646.2	44813.7								
CCV5				CCV		4.736		43420	3.57			
		1.0000					94.72					
Replicates	42205.9	42369.4	43559.6	45544.4								
CCB5				CCB		-0.003		280	33.53			
		1.0000					N/A					
Replicates	270.7	276.2	283.2	289.0								
K2408331-001				UNK		0.387		3823	0.56			
		1.0000					N/A					
Replicates	3797.0	3837.1	3839.3	3819.3								
KQ2412533-01				UNK		0.534		5164	3.68			
		1.0000					N/A					
Replicates	5329.1	5269.6	5132.0	4926.5								
KQ2412533-02				UNK		2.689		24783	0.84			
		1.0000					N/A					
Replicates	24500.0	24770.5	24905.5	24957.1								
K2408337-001				UNK		1.216		11375	3.85			
		1.0000					N/A					
Replicates	10868.1	11203.3	11592.0	11835.2								
K2408331-001A				UNK		4.493		41207	6.06			
		1.0000					N/A					
Replicates	43717.7	42883.6	39628.5	38596.6								
K2408331-001				UNK		0.577		5561	4.71			
		1.0000					N/A					
Replicates	5354.9	5440.9	5532.6	5916.4								

AS 8/22/24

Sample Name	Type	Conc (ug/L)	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
Aliq. Vol. Diln. Vol DF Spike Vol % Recovery							
KQ2412533-01	UNK	0.549	5297	0.58			
1.0000 N/A							
Replicates 5277.8 5273.0 5336.2 5302.5							
KQ2412533-02	UNK	5.061	46384	13.59			
1.0000 N/A							
Replicates 52689.9 50048.5 44119.0 38676.8							
K2408331-001A	UNK	4.560	41817	0.79			
1.0000 N/A							
Replicates 41741.1 42095.3 42044.5 41387.5							
K2408337-001	UNK	1.440	13409	1.35			
1.0000 N/A							
Replicates 13584.1 13490.6 13387.7 13172.1							
CCV6	CCV	4.543	41668	1.14			
1.0000 90.87							
Replicates 41296.5 41380.5 41658.4 42335.2							
CCB6	CCB	-0.005	258	21.87			
1.0000 N/A							
Replicates 267.5 257.0 262.8 244.3							
KQ2412899-04	UNK	0.003	333	42.42			
1.0000 N/A							
Replicates 337.5 344.0 336.5 315.1							
KQ2412899-05	UNK	4.399	40353	0.95			
1.0000 N/A							
Replicates 39877.6 40242.1 40531.3 40761.3							
KQ2412899-06 20x SS 8/22/24	UNK	5.028	46081	1.01			
1.0000 N/A							
Replicates 46144.3 46439.9 46331.3 45408.9							
K2408565-013	UNK	0.133	1515	1.97			
1.0000 N/A							
Replicates 1482.3 1539.4 1520.7 1517.0							
KQ2412899-01	UNK	0.134	1520	1.70			
1.0000 N/A							
Replicates 1488.9 1533.1 1528.6 1528.0							
KQ2412899-02	UNK	4.422	40565	1.28			
1.0000 N/A							
Replicates 40879.6 40857.6 40721.2 39801.6							
KQ2412899-03	UNK	4.484	41128	3.71			
1.0000 N/A							
Replicates 42655.2 41846.5 40876.9 39132.0							
K2408565-013A	UNK	4.796	43963	0.89			
1.0000 N/A							
Replicates 43882.9 44238.8 44284.4 43445.9							

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type / Spike Vol	Conc (ug/L) / % Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
K2408565-009				UNK	0.159	1748	2.23			
			1.0000		N/A					
Replicates	1762.1	1779.0	1747.9	1703.7						
K2408565-010				UNK	0.144	1616	2.35			
			1.0000		N/A					
Replicates	1589.5	1594.6	1622.7	1656.6						
CCV7				CCV	4.692	43021	3.74			
			1.0000		93.84					
Replicates	41517.4	42215.6	43161.9	45190.8						
CCB7				CCB	-0.005	258	21.77			
			1.0000		N/A					
Replicates	264.9	244.4	257.3	265.9						
K2408565-011				UNK	0.168	1834	1.21			
			1.0000		N/A					
Replicates	1845.4	1842.0	1842.5	1806.3						
K2408565-012				UNK	0.144	1610	1.49			
			1.0000		N/A					
Replicates	1610.3	1622.9	1625.2	1582.9						
K2408568-009				UNK	0.228	2384	0.62			
			1.0000		N/A					
Replicates	2365.6	2386.5	2395.9	2387.7						
K2408568-010				UNK	0.186	1996	1.14			
			1.0000		N/A					
Replicates	1967.5	2009.9	2004.0	2003.5						
K2408568-011				UNK	1.930	17875	2.46			
			1.0000		N/A					
Replicates	17323.5	17736.7	18222.0	18215.9						
K2408568-012				UNK	1.657	15393	1.63			
			1.0000		N/A					
Replicates	15125.7	15258.4	15515.9	15671.6						
K2408571-009				UNK	0.712	6783	1.03			
			1.0000		N/A					
Replicates	6797.0	6825.3	6826.5	6685.0						
K2408571-010				UNK	0.219	2300	1.57			
			1.0000		N/A					
Replicates	2274.8	2325.4	2328.9	2271.4						
K2408571-011				UNK	0.156	1725	2.09			
			1.0000		N/A					
Replicates	1699.7	1698.6	1749.9	1751.1						
CCV8				CCV	4.547	41703	1.20			
			1.0000		90.95					
Replicates	41038.6	41609.7	42014.2	42147.4						

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
CCB8				CCB		-0.006		253	23.43				
			1.0000				N/A						
	Replicates		269.0		242.3		254.4		245.8				

Preparation Information Benchsheet

Prep Run#: 443324
Team: Metals/SSOLADEY
Number of Copies to make: 4

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 11:18

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2412793-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2412793-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2408108-003RE	KL-04-A-Comp	.12	7471B/Hg		Sediment	0.510g	50.00mL	ZBIBI k-balance-50
4	K2408108-006RE	KL-04-B-Comp	.11	7471B/Hg		Sediment	0.572g	50.00mL	ZBIBI k-balance-50
5	K2408108-009RE	KL-04-Z-Comp	.11	7471B/Hg		Sediment	0.572g	50.00mL	ZBIBI k-balance-50
6	K2408109-003RE	KL-05-A-Comp	.10	7471B/Hg		Sediment	0.586g	50.00mL	ZBIBI k-balance-50
7	K2408109-006RE	KL-05-B-Comp	.10	7471B/Hg		Sediment	0.565g	50.00mL	ZBIBI k-balance-50
8	K2408109-009RE	KL-05- Z-Comp	.10	7471B/Hg		Sediment	0.529g	50.00mL	ZBIBI k-balance-50
9	K2408496-003	KL-01-A-Comp	.11	7471B/Hg		Sediment	0.535g	50.00mL	TRICKMAN K-BALANCE-55
10	KQ2412793-01	K2408496-003 DUP	.10	7471B/Hg		Solid	0.552g	50.00mL	TRICKMAN K-BALANCE-55
11	KQ2412793-02	K2408496-003 MS	.10	7471B/Hg		Solid	0.537g	50.00mL	TRICKMAN K-BALANCE-55
12	K2408496-006	KL-01-B-Comp	.10	7471B/Hg		Sediment	0.590g	50.00mL	TRICKMAN K-BALANCE-55
13	K2408496-009	KL-01-Z-Comp	.10	7471B/Hg		Sediment	0.531g	50.00mL	TRICKMAN K-BALANCE-55
14	K2408597-003	KL-02-A-Comp	.06	7471B/Hg		Sediment	0.511g	50.00mL	TRICKMAN K-BALANCE-55 / ****FUEL ODOR
15	K2408597-006	KL-02-B-Comp	.06	7471B/Hg		Sediment	0.546g	50.00mL	TRICKMAN K-BALANCE-55
16	K2408597-009	KL-02--Z-Comp	.06	7471B/Hg		Sediment	0.597g	50.00mL	TRICKMAN K-BALANCE-55

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2412793-02 0.25mL KQ2412793-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube LV24010606 (236632) K-MET HCl Hg 23H2862017 (236939) K-MET HNO3 Hg 23H1462003 (236777)

Preparation Steps

Step: Weigh
Started: 8/21/24 11:18
Finished: 8/21/24 11:48
By: SSOLADEY
Comments

Step: Digestion
Started: 8/21/24 11:18
Finished: 8/21/24 11:48
By: SSOLADEY
Comments

Preparation Equipment

K-Block-Digester-14 Digestion
K-Block-Digester-14 Digestion
Hg-43188965 Digestion

IR Thermometer ID: IR03
Temperature Check Location 32

K-Block-Digester-14 Digestion Temperature 96 deg C
K-U72662 Digestion
HG-39591307 Digestion

Preparation Information Benchsheet

Prep Run#: 443324
Team: Metals/SSOLADEY

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 11:18

Comments: Cal Std/CCV Source: HG4-12-G

Reviewed By: _____ Date: 8/22/24

Preparation Information Benchsheet

Prep Run#: 443324
Team: Metals/SSOLADEY
Number of Copies to make: 4

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/16/24 11:43 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2412793-03**	MB			7471B / Hg	Solid						
2	**KQ2412793-04**	LCS			7471B / Hg	Solid						99
3	**K2408108-003RE**	KL-04-A-Comp	.12		7471B / Hg	Sediment						
4	**K2408108-006RE**	KL-04-B-Comp	.11		7471B / Hg	Sediment						
5	**K2408108-009RE**	KL-04-Z-Comp	.11		7471B / Hg	Sediment						
6	**K2408109-003RE**	KL-05-A-Comp	.10		7471B / Hg	Sediment						
7	**K2408109-006RE**	KL-05-B-Comp	.10		7471B / Hg	Sediment						
8	**K2408109-009RE**	KL-05- Z-Comp	.10		7471B / Hg	Sediment						
9	**K2408496-003**	KL-01-A-Comp	.11		7471B / Hg	Sediment						
10	**KQ2412793-01**	K2408496-003 DUP	.10		7471B / Hg	Solid						
11	**KQ2412793-02**	K2408496-003 MS 84 √.	.10		7471B / Hg PS 98	Solid						
12	**K2408496-006**	KL-01-B-Comp	.10		7471B / Hg	Sediment						
13	**K2408496-009**	KL-01-Z-Comp	.10		7471B / Hg	Sediment						
14	**K2408597-003**	KL-02-A-Comp	.06		7471B / Hg	Sediment						
15	**K2408597-006**	KL-02-B-Comp	.06		7471B / Hg	Sediment						
16	**K2408597-009**	KL-02--Z-Comp	.06		7471B / Hg	Sediment						

Cal 9:45-10:15

Comments: HG4-12-G B14TL32T96 11:19-11:48

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 443354 **Container Lot No:** 2206050 **Prep Due Date:** Aug-09-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408108-003	.12	Hg : 7471B/	0.510g		ZBIBI k-balance-50
2	K2408108-006	.11	Hg : 7471B/	0.572g		ZBIBI k-balance-50
3	K2408108-009	.11	Hg : 7471B/	0.572g		ZBIBI k-balance-50
4	K2408109-003	.10	Hg : 7471B/	0.586g		ZBIBI k-balance-50
5	K2408109-003 DUP KQ2412836-01	.10	Hg : 7471B/	0.537g		ZBIBI k-balance-50
6	K2408109-003 MS KQ2412836-02	.10	Hg : 7471B/	0.533g		ZBIBI k-balance-50
7	K2408109-006	.10	Hg : 7471B/	0.565g		ZBIBI k-balance-50
8	K2408109-009	.10	Hg : 7471B/	0.529g		ZBIBI k-balance-50

8/16/24 1519

Relinquished By:	228	Date/Time:	Received By:	Date/Time: 8/21/24 1100

Pre-Prep Information Benchsheet

Prep Run #: 443324 **Container Lot No:** LV24010606 **Prep Due Date:** Sep-05-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408496-003	.10	Hg : 7471B/	0.535g	.0396	TRICKMAN K-BALANCE-55
2	K2408496-003 DUP KQ2412793-01	.10	Hg : 7471B/	0.552g	.0389	TRICKMAN K-BALANCE-55
3	K2408496-003 MS KQ2412793-02	.10	Hg : 7471B/	0.537g	.432 84	TRICKMAN K-BALANCE-55
4	K2408496-006	.10	Hg : 7471B/	0.590g		TRICKMAN K-BALANCE-55
5	K2408496-009	.10	Hg : 7471B/	0.531g		TRICKMAN K-BALANCE-55

PS .497 98

PS .467

MS .466

Relinquished By:	Date/Time: 8-16-24 11:50	Received By:	Date/Time: 8/21/24 1100

Pre-Prep Information Benchsheet

Prep Run #: 443529 **Container Lot No:** LV24010606 **Prep Due Date:** Sep-10-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408597-003	.06	Hg : 7471B/	0.511g	****FUEL ODOR	TRICKMAN K-BALANCE-55
2	K2408597-003 DUP KQ2413044-01	.06	Hg : 7471B/	0.587g		TRICKMAN K-BALANCE-55
3	K2408597-003 MS KQ2413044-02	.06	Hg : 7471B/	0.595g		TRICKMAN K-BALANCE-55
4	K2408597-006	.06	Hg : 7471B/	0.546g		TRICKMAN K-BALANCE-55
5	K2408597-009	.06	Hg : 7471B/	0.597g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time:	Received By:	Date/Time:
	8-21-24 09:52		8/21/24 1100

Preparation Information Benchsheet

Prep Run#: 443271
Team: Metals/SSOLADEY
Number of Copies to make: 4

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 09:45

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2412723-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2412723-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2408365-001	Soil #1	.01	7471B/Hg		Soil	0.571g	50.00mL	TRICKMAN K-BALANCE-55
4	K2408415-001	B1A-SB63-0.0-1.0	.03	7471B/Hg		Soil	0.596g	50.00mL	TRICKMAN K-BALANCE-55
5	K2408415-002	B1A-SB63-1.0-1.8	.01	7471B/Hg		Soil	0.525g	50.00mL	TRICKMAN K-BALANCE-55
6	K2408415-003	B1A-SB64-0.0-1.0	.01	7471B/Hg		Soil	0.543g	50.00mL	TRICKMAN K-BALANCE-55
7	K2408415-004	B1A-SB64-2.0-3.0	.01	7471B/Hg		Soil	0.512g	50.00mL	TRICKMAN K-BALANCE-55
8	K2408415-005	B1A-SB64-4.0-4.6	.01	7471B/Hg		Soil	0.573g	50.00mL	TRICKMAN K-BALANCE-55
9	K2408463-001	2024KGMLJCS1	.01	7471B/Hg		Soil	0.759g	50.00mL	PPRICE k-balance-49
10	KQ2412723-01	K2408463-001 DUP	.01	7471B/Hg		Solid	0.764g	50.00mL	PPRICE k-balance-49
11	KQ2412723-02	K2408463-001 MS	.01	7471B/Hg		Solid	0.775g	50.00mL	PPRICE k-balance-49
12	K2408463-002	2024KGMLJCS2	.01	7471B/Hg		Soil	0.645g	50.00mL	PPRICE k-balance-49
13	K2408463-003	2024KGMLJCS3	.01	7471B/Hg		Soil	0.774g	50.00mL	PPRICE k-balance-49
14	K2408502-001	Linda In Dift	.02	7471B/Hg		Soil	0.542g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2412723-02 0.25mL KQ2412723-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube LV24010606 (236632) K-MET HCl Hg 23H2862017 (236939) K-MET HNO3 Hg 23H1462003 (236777)

Preparation Steps

Step: Weigh
Started: 8/21/24 09:45
Finished: 8/21/24 10:15
By: SSOLADEY
Comments

Step: Digestion
Started: 8/21/24 09:45
Finished: 8/21/24 10:15
By: SSOLADEY
Comments

Preparation Equipment

K-Block-Digester-14 Digestion
K-Block-Digester-14 Digestion
K-BlockDigester-15 Digestion
Hg-43188965 Digestion
K-U72662 Digestion

IR Thermometer ID: IR03
Temperature Check Location 32
Temperature 95 deg C

K-Block-Digester-14 Digestion
K-BlockDigester-15 Digestion
K-BlockDigester-15 Digestion
HG-39591307 Digestion

Temperature 96 deg C
IR Thermometer ID: IR03
Temperature Check Location 32

Preparation Information Benchsheet

Prep Run#: 443271
Team: Metals/SSOLADEY

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 09:45

Comments: Cal Std/CCV Source: HG4-12-G

Reviewed By: _____ Date: 8/22/24

Preparation Information Benchsheet

Prep Run#: 443271
Team: Metals/PPRICE
Number of Copies to make: 4

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/15/24 14:25 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2412723-03**	MB			7471B / Hg	Solid						
2	**KQ2412723-04**	LCS			7471B / Hg	Solid						94
3	**K2408365-001**	Soil #1	.01		7471B / Hg	Soil						
4	**K2408415-001**	B1A-SB63-0.0-1.0	.03		7471B / Hg	Soil						
5	**K2408415-002**	B1A-SB63-1.0-1.8	.01		7471B / Hg	Soil						
6	**K2408415-003**	B1A-SB64-0.0-1.0	.01		7471B / Hg	Soil						
7	**K2408415-004**	B1A-SB64-2.0-3.0	.01		7471B / Hg	Soil						
8	**K2408415-005**	B1A-SB64-4.0-4.6	.01		7471B / Hg	Soil						
9	**K2408463-001**	2024KGMLJCS1	.01		7471B / Hg	Soil						
10	**KQ2412723-01**	K2408463-001 DUP	.01		7471B / Hg	Solid						
11	**KQ2412723-02**	K2408463-001 MS 94	.01		7471B / Hg PS 103	Solid						
12	**K2408463-002**	2024KGMLJCS2	.01		7471B / Hg	Soil						
13	**K2408463-003**	2024KGMLJCS3	.01		7471B / Hg	Soil						
14	**K2408502-001**	Linda In Dift	.02		7471B / Hg	Soil						

Cal B14TL32T96

Comments: HG4-12-G B15TL32T95 9:45- 10:15

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 443207 **Container Lot No:** 2206050 **Prep Due Date:** Aug-16-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408365-001	.01	Hg : 7471B/	0.571g		TRICKMAN K-BALANCE-55
2	K2408365-001 DUP KQ2412648-01	.01	Hg : 7471B/	0.513g		TRICKMAN K-BALANCE-55
3	K2408365-001 MS KQ2412648-02	.01	Hg : 7471B/	0.567g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time:	Received By:	Date/Time:
TE	8-15-24 1630	AL	8/21/24 1000

Pre-Prep Information Benchsheet

Prep Run #: 443253 **Container Lot No:** 2206050 **Prep Due Date:** Oct-02-2023

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408415-001	.03	Hg : 7471B/	0.596g		TRICKMAN K-BALANCE-55
2	K2408415-001 DUP KQ2412697-01	.03	Hg : 7471B/	0.525g		TRICKMAN K-BALANCE-55
3	K2408415-001 MS KQ2412697-02	.03	Hg : 7471B/	0.508g		TRICKMAN K-BALANCE-55
4	K2408415-002	.01	Hg : 7471B/	0.525g		TRICKMAN K-BALANCE-55
5	K2408415-003	.01	Hg : 7471B/	0.543g		TRICKMAN K-BALANCE-55
6	K2408415-004	.01	Hg : 7471B/	0.512g		TRICKMAN K-BALANCE-55
7	K2408415-005	.01	Hg : 7471B/	0.573g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time: 8-15-24 11:57	Received By:	Date/Time: 9006 8/21/24

Pre-Prep Information Benchsheet

Prep Run #: 443271 **Container Lot No:** 2111109 **Prep Due Date:** Aug-26-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408463-001	.01	Hg : 7471B/	0.759g	.0181	PPRICE k-balance-49
2	K2408463-001 DUP KQ2412723-01	.01	Hg : 7471B/	0.764g	.0155	PPRICE k-balance-49 .0168
3	K2408463-001 MS KQ2412723-02	.01	Hg : 7471B/	0.775g	.321	PPRICE k-balance-49
4	K2408463-002	.01	Hg : 7471B/	0.645g		PPRICE k-balance-49
5	K2408463-003	.01	Hg : 7471B/	0.774g		PPRICE k-balance-49

PS .357

PS .329

MS .323

Relinquished By: PDP	Date/Time: 8/15/24 1430	Received By: LL	Date/Time: 9000 8/21/24

Pre-Prep Information Benchsheet

Prep Run #: 443343 **Container Lot No:** 2206050 **Prep Due Date:** Aug-21-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408502-001	.02	Hg : 7471B/	0.542g		ZBIBI k-balance-50
2	K2408502-001 DUP KQ2412826-01	.02	Hg : 7471B/	0.532g		ZBIBI k-balance-50
3	K2408502-001 MS KQ2412826-02	.02	Hg : 7471B/	0.546g		ZBIBI k-balance-50

Relinquished By: ZZB	Date/Time: 8/16/24 14:35	Received By:	Date/Time: 8/21/24 0900

Preparation Information Benchsheet

Prep Run#: 443508
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 09:45

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2413026-01	MB		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
2	KQ2413026-02	LCS		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
3	K2408564-001	Sodium Chlorate	.02	7471A/Hg		NonAq Liquid	0.5180g	50.00mL	
4	KQ2413026-03	K2408564-001 DUP	.02	7471A/Hg		NonAq Liquid	0.5200g	50.00mL	
5	KQ2413026-04	K2408564-001 MS	.02	7471A/Hg		NonAq Liquid	0.5250g	50.00mL	

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2413026-02 0.25mL KQ2413026-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube LV24010606 (236632) K-MET HCl Hg 23H2862017 (236939) K-MET HNO3 Hg 23H1462003 (236777)

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/21/24 09:45	Started:	8/21/24 09:45
Finished:	8/21/24 10:15	Finished:	8/21/24 10:15
By:	SSOLADEY	By:	SSOLADEY
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	96 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	32	K-Balance-37	Weigh	Date Checked	082124
K-U72662	Digestion			HG-39591307	Digestion		
Hg-43188965	Digestion						

Comments: Cal Std/CCV Source: HG4-12-G

Reviewed By: _____ Date: 8/22/24

Printed 8/21/24 21:28

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Preparation Information Benchsheet

Prep Run#: 443508
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/21/24 01:30 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2413026-01**	MB			7471A / Hg	NonAq Liquid						
2	**KQ2413026-02**	LCS			7471A / Hg	NonAq Liquid						95
3	**K2408564-001**	Sodium Chlorate	.02		7471A / Hg	NonAq Liquid	.518		.0136			
4	**KQ2413026-03**	K2408564-001 DUP	.02		7471A / Hg	NonAq Liquid	.520		.0161			
5	**KQ2413026-04**	K2408564-001 MS 96	.02		7471A / Hg P599	NonAq Liquid	.525		.470			

K-Bal-37 8/21/24

PS .490 99

MS .476
PS .483

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Comments: HG4-12-G B14T232T96 9:45-10:15

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 443114
Team: Metals/SSOLADEY
Number of Copies to make: 2

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 11:18

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2412533-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2412533-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2408331-002	Biosolids Cake	.04	7471B/Hg		Biosolids Solids	0.549g	50.00mL	ZBIBI k-balance-50
4	KQ2412533-01	K2408331-002 DUP	.04	7471B/Hg		Solid	0.559g	50.00mL	ZBIBI k-balance-50
5	KQ2412533-02	K2408331-002 MS	.04	7471B/Hg		Solid	0.595g	50.00mL	ZBIBI k-balance-50
6	K2408337-001	EQ Biosolids	.01	7471B/Hg		Biosolids Solids	0.515g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2412533-02 0.25mL KQ2412533-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube LV24010606 (236632) K-MET HCl Hg 23H2862017 (236939) K-MET HNO3 Hg 23H1462003 (236777)

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/21/24 11:18	Started:	8/21/24 11:18
Finished:	8/21/24 11:48	Finished:	8/21/24 11:48
By:	SSOLADEY	By:	SSOLADEY
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	96 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	32	K-U72662	Digestion		
Hg-43188965	Digestion			HG-39591307	Digestion		

Comments: Cal Std/CCV Source: HG4-12-G

Reviewed By: _____ Date: 8/22/24

Page 168 of 173

Preparation Information Benchsheet

Prep Run#: 443114
Team: Metals/ZBIBI
Number of Copies to make: 2

Prep WorkFlow: HgDigS
Prep Method: Method

~~MSAcold~~

Status: Draft
Prep Date/Time: 8/13/24 15:05 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2412533-03**	MB			7471B / Hg	Solid						
2	**KQ2412533-04**	LCS			7471B / Hg	Solid						96
3	**K2408331-002** RR	Biosolids Cake	.04		7471B / Hg	Biosolids Solids						
4	**KQ2412533-01** RR	K2408331-002 DUP	.04		7471B / Hg	Solid						
5	**KQ2412533-02** RR PS	K2408331-002 MS ~~457.~~	.04		7471B / Hg ~~PS 82%~~	Solid						
6	**K2408337-001** RR	EQ Biosolids	.01		7471B / Hg	Biosolids Solids						

RR PS

Cal 9:45-10:15

Comments: HG-4-12-G B14TL32T96 11:18-11:48

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 443114 **Container Lot No:** 2206050 **Prep Due Date:** Aug-20-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408331-002	.04	Hg : 7471B/	0.549g	.0352	ZBIBI k-balance-50
2	K2408331-002 DUP KQ2412533-01	.04	Hg : 7471B/	0.559g	.0478	ZBIBI k-balance-50 .0415
3	K2408331-002 MS KQ2412533-02	.04	Hg : 7471B/	0.595g	.226 45	ZBIBI k-balance-50
4	K2408337-001	.01	Hg : 7471B/	0.515g		ZBIBI k-balance-50

PS .409 82

PS .455
MS .420

Relinquished By: ZB	Date/Time: 8/13/24 1508	Received By: LL	Date/Time: 8/21/24 1100

Preparation Information Benchsheet

Prep Run#: 443398
Team: Metals/SSOLADEY
Number of Copies to make: 3

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 09:45

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2412899-04	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2412899-05	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	KQ2412899-06	LCS1		7471B/Hg		Solid	0.2520g	50.00mL	
4	K2408565-009	DC0824-UDC1-SL001	.01	7471B/Hg		Solid	0.507g	50.00mL	ZBIBI k-balance-50
5	K2408565-010	DC0824-UDC2-SL001	.01	7471B/Hg		Solid	0.515g	50.00mL	ZBIBI k-balance-50
6	K2408565-011	DC0824-UDC2-SL201	.01	7471B/Hg		Solid	0.536g	50.00mL	ZBIBI k-balance-50
7	K2408565-012	DC0824-UDCBC-SL001	.01	7471B/Hg		Solid	0.538g	50.00mL	ZBIBI k-balance-50
8	K2408565-013	DC0824-UDCBKG1-SL001	.01	7471B/Hg		Solid	0.553g	50.00mL	ZBIBI k-balance-50
9	KQ2412899-01	K2408565-013 DUP	.01	7471B/Hg		Solid	0.526g	50.00mL	ZBIBI k-balance-50
10	KQ2412899-02	K2408565-013 MS	.01	7471B/Hg		Solid	0.524g	50.00mL	ZBIBI k-balance-50
11	KQ2412899-03	K2408565-013 DMS	.01	7471B/Hg		Solid	0.5280g	50.00mL	ZBIBI k-balance-50
12	K2408568-009	DC0824-UDCBKG2-SL001	.01	7471B/Hg		Solid	0.546g	50.00mL	ZBIBI k-balance-50
13	K2408568-010	DC0824-UDCBKG3-SL001	.01	7471B/Hg		Solid	0.512g	50.00mL	ZBIBI k-balance-50
14	K2408568-011	DC0824-LDC1-SL001	.01	7471B/Hg		Solid	0.588g	50.00mL	ZBIBI k-balance-50
15	K2408568-012	DC0824-LDC2-SL001	.01	7471B/Hg		Solid	0.594g	50.00mL	ZBIBI k-balance-50
16	K2408571-009	DC0824-LDCOR-SL001	.01	7471B/Hg		Solid	0.540g	50.00mL	ZBIBI k-balance-50
17	K2408571-010	DC0824-LDC4-SL001	.01	7471B/Hg		Solid	0.597g	50.00mL	ZBIBI k-balance-50
18	K2408571-011	DC0824-LDCYJC-SL001	.01	7471B/Hg		Solid	0.562g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET SOIL CRM Inventory ID 232281 Logbook Ref: D122-540 Expires On: 03/13/2027

KQ2412899-06 0.25g

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2412899-02 0.25mL KQ2412899-03 0.25mL KQ2412899-05 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube LV24010606 (236632) K-MET HCl Hg 23H2862017 (236939) K-MET HNO3 Hg 23H1462003 (236777)

Preparation Information Benchsheet

Prep Run#: 443398
Team: Metals/SSOLADEY

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/21/24 09:45

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/21/24 09:45	Started:	8/21/24 09:45
Finished:	8/21/24 10:15	Finished:	8/21/24 10:15
By:	SSOLADEY	By:	SSOLADEY
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	96 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	32	K-Balance-37	Weigh	Date Checked	082124
Hg-43188965	Digestion			K-U72662	Digestion		
HG-39591307	Digestion						

Comments: Cal Std/CCV Source: HG4-12-G

Reviewed By: _____ Date: 3/22/24

Preparation Information Benchsheet

Prep Run#: 443398
Team: Metals/ZBIBI
Number of Copies to make: 3

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/19/24 11:56 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2412899-04**	MB			7471B / Hg	Solid						
2	**KQ2412899-05**	LCS			7471B / Hg	Solid						98
3	**KQ2412899-06**	LCS1*			7471B / Hg 232281	Solid	.252			mgKg 19.95		92%
4	**K2408565-009**	DC0824-UDC1-SL001	.01		7471B / Hg	Solid						
5	**K2408565-010**	DC0824-UDC2-SL001	.01		7471B / Hg	Solid						
6	**K2408565-011**	DC0824-UDC2-SL201	.01		7471B / Hg	Solid						
7	**K2408565-012**	DC0824-UDCBC-SL001	.01		7471B / Hg	Solid						
8	**K2408565-013**	DC0824-UDCBKG1-SL001	.01		7471B / Hg	Solid						
9	**KQ2412899-01**	K2408565-013 DUP	.01		7471B / Hg	Solid						
10	**KQ2412899-02**	K2408565-013 MS 92	.01		7471B / Hg	Solid						
11	**KQ2412899-03**	K2408565-013 DMS* 87	.01		7471B / Hg 235293	Solid	.528					
12	**K2408568-009**	DC0824-UDCBKG2-SL001	.01		7471B / Hg	Solid						
13	**K2408568-010**	DC0824-UDCBKG3-SL001	.01		7471B / Hg	Solid						
14	**K2408568-011**	DC0824-LDC1-SL001	.01		7471B / Hg	Solid						
15	**K2408568-012**	DC0824-LDC2-SL001	.01		7471B / Hg	Solid						
16	**K2408571-009**	DC0824-LDCOR-SL001	.01		7471B / Hg	Solid						
17	**K2408571-010**	DC0824-LDC4-SL001	.01		7471B / Hg	Solid						
18	**K2408571-011**	DC0824-LDCYJC-SL001	.01		7471B / Hg	Solid						

Page 1 of 3

K-Bal-37 8/21/24

KMnO4 12-B 8/18/25

Comments: HG4-12-G BI4R32T96 9:45-10:15

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 443398 **Container Lot No:** 2206050 **Prep Due Date:** Aug-22-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2408565-009	.01	Hg : 7471B/	0.507g		ZBIBI k-balance-50
2	K2408565-010	.01	Hg : 7471B/	0.515g		ZBIBI k-balance-50
3	K2408565-011	.01	Hg : 7471B/	0.536g		ZBIBI k-balance-50
4	K2408565-012	.01	Hg : 7471B/	0.538g		ZBIBI k-balance-50
5	K2408565-013	.01	Hg : 7471B/	0.553g	.012	ZBIBI k-balance-50
6	K2408565-013 DUP KQ2412899-01	.01	Hg : 7471B/	0.526g	.0127	ZBIBI k-balance-50 .0123
7	K2408565-013 MS KQ2412899-02	.01	Hg : 7471B/	0.524g	.422	ZBIBI k-balance-50
8	K2408568-009	.01	Hg : 7471B/	0.546g		ZBIBI k-balance-50
9	K2408568-010	.01	Hg : 7471B/	0.512g		ZBIBI k-balance-50
10	K2408568-011	.01	Hg : 7471B/	0.588g		ZBIBI k-balance-50
11	K2408568-012	.01	Hg : 7471B/	0.594g		ZBIBI k-balance-50
12	K2408571-009	.01	Hg : 7471B/	0.540g		ZBIBI k-balance-50
13	K2408571-010	.01	Hg : 7471B/	0.597g		ZBIBI k-balance-50
14	K2408571-011	.01	Hg : 7471B/	0.562g		ZBIBI k-balance-50

DMS .425
PS .434

MS .477
DMS .473
PS .452

8/19/24 12.02

Relinquished By:	Date/Time:	Received By:	Date/Time:
ZZB			0900 8/21/24

Quality Tracking Form

Service Request(s)	K2408108, 8109
Project Chemist	Howard Holmes
Folder Due Date	8/20/24
Test	7471B
Sample Matrix	Sediment
Prep Run Number(s)	442890
Sample(s)	K2408108-003, -006, -009; K2408109-003, -006, -009
Run Number(s)	850656
Prep Analyst(s)	SSoladey
Extraction Prep Hold Date	N/A
Analytical Run Hold Date	N/A
Non-Conformance Explanation	Hg in MB
Proposed Corrective Action	Redigest Samples

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

September 13, 2024

Analytical Report for Service Request No: K2407891

Erika King
Alaska Department of Fish and Game
Division of Habitat
802 3rd Street
P.O. Box 110024
Douglas, AK 99811-0024

RE: Coeur AK Biomonitoring

Dear Erika,

Enclosed are the results of the sample(s) submitted to our laboratory July 31, 2024
For your reference, these analyses have been assigned our service request number **K2407891.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

ALS Environmental
ALS Group USA, Corp
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T : +1 360 577 7222
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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

ALS Environmental

Client: Alaska Department of Fish and Game
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Service Request: K2407891
Date Received: 07/31/2024

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Fourteen soil samples were received for analysis at ALS Environmental on 07/31/2024. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

Method 200.8, 08/14/2024: The Relative Percent Difference (RPD) for the replicate analysis of Chromium in sample 2024 KGMUSC S1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 200.8, 08/14/2024: The matrix spike recovery of Chromium for sample 2024 KGMUSC S1 was outside the ALS control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. Since the unspiked sample contained high analyte concentration relative to the amount spiked, the variability between replicates was sufficient to bias the percent recoveries outside normal ALS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Method 200.8, 08/14/2024: The matrix spike recovery of Copper for sample 2024 KGMLSJH S2 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

General Chemistry:

Method PSEP Sulfide, 08/01/2024: Samples in this delivery group were received past holding time. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

Approved by Noe D. Diaz Date 09/13/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

CHAIN OF CUSTODY

124481

001

SR# 164078911

COC Set ____ of ____

COC# ____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	Coeur AK Biomonitoring
Project Number	
Project Manager	Erika King
Company	Coeur-AK/ADFG
Address	802 3rd st. Douglas AK 99824
Phone #	907-465-6979
email	erika.king@alaska.gov
Sampler Signature	
Sampler Printed Name	Greg Albrecht

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D: 160.4 Modified / TVS	7D: PSEP Sulfide / PSEP Sulfide	14D: PSEP TOC / PSEP TOC	14D: PSEP TOC / PSEP TOC T	28D: 7471B / Hg	180D: 200.8 / Metals T	180D: KSTM D422M / Particle	999D: 160.3 Modified / TS	F	G	S	W	B	Remarks
1. 2024 KGMUSCS1		7/23	1430	Soil	3	X	X	X	X	X	X	X	X						
2. 2024 KGMUSCS2		7/23	1430		3	X	X	X	X	X	X	X	X						
3. 2024 KGMUSCS3		7/23	1430		3	X	X	X	X	X	X	X	X						
4. 2024 KGMUSCSP2S1		7/23	1300		3	X	X	X	X	X	X	X	X						
5. 2024 KGMUSCSP2S2		7/23	1300		3	X	X	X	X	X	X	X	X						
6. 2024 KGMUSCSP2S3		7/23	1300		2	X	X	X	X	X	X	X	X						
7. ~~2024 KGMUFSC S1~~																			
8. ~~2024 KGMUFSC S2~~																			
9. 2024 KGMLSKS3		7/22	1000		3	X	X	X	X	X	X	X	X						
10.																			

Report Requirements

- ___ I. Routine Report: Method Blank, Surrogate, as required
- ✓ II. Report Dup., MS, MSD as required
- ___ III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- ___ V. EDD

Invoice Information

P.O.# ____

Bill To: Coeur AK

pstraw@coeur.com

Turnaround Requirements

- ___ 24 hr
- ___ 48 hr
- ___ 6 Day
- ✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

Send lab reports to:
Erika.king@alaska.gov
Jesse.lindgren@alaska.gov

Send billing info to:
pstraw@coeur.com

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other ____ (Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Greg Albrecht	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: ADFG	Firm	Firm	Firm	Firm	Firm
Date/Time: 7/29/24 0930	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

ALS

CHAIN OF CUSTODY

~~124481~~

001

SR# K240 7891

COC Set ____ of ____

COC# ____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Coeur AK Biomonitoring | Project Number:
Project Manager: Erika King
Company: Coeur-AK/ADFG
Address: 802 3rd st. Douglas AK 99824
Phone #: 907-465-693 | email: erika.king@alaska.gov
Sampler Signature: | Sampler Printed Name: Greg Albright

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D: HG 4 Modified / TVS	7D: PSEP Sulfide / PSEP Sulfide	14D: PSEP TOC / PSEP TOC	14D: PSEP TOC / PSEP TOC T	28D: E7471B / Hg	180D: 200.8 / Metals T	180D: ASTM D422M / Particle	999D: HG 3 Modified / TS	F	G	H	I	J	Remarks
1. 2024 KGM WFSC S1		7/23	1000	Soil	3	X	X	X	X	X	X	X	X						
2. 2024 KGM WFSC S2		7/23	1000		3	X	X	X	X	X	X	X	X						
3. 2024 KGM WFSC S3		7/23	1000		3	X	X	X	X	X	X	X	X						
4. 2024 KGM HJC S1		7/22	1500		3	X	X	X	X	X	X	X	X						
5. 2024 KGM HJC S2		7/22	1500		3	X	X	X	X	X	X	X	X						
6. 2024 KGM HJC S3		7/22	1500		3	X	X	X	X	X	X	X	X						
7. 2024 KGM USH S2		7/22	1000	↓	3	X	X	X	X	X	X	X	X						
8.																			
9.																			
10.																			

Report Requirements

- ___ I Routine Report: Method Blank, Surrogate, as required
- ✓ II Report Dup., MS, MSD as required
- ___ III CLP Like Summary (no raw data)
- ___ IV Data Validation Report
- ___ V EDD

Invoice Information

P.O.#____

Bill To: Coeur AK

pstraw@coeur.com

Turnaround Requirements

___ 24 hr ___ 48 hr
___ 5 Day
✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

Send lab reports to:
Erika.king@alaska.gov
Jesse.lindgren@alaska.gov

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

send billing info to:
pstraw@coeur.com

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature: Naomi Pedersen	Signature	Signature	Signature	Signature
Printed Name: Greg Albright	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: ADFG	Firm: 7/31/24 0920	Firm	Firm	Firm	Firm
Date/Time: 7/29/24 0930	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PM_____

Cooler Receipt and Preservation Form

Client ADF&G Service Request K24

Received: 7/31/24 Opened: 7/31/24 By: AP Unloaded: 7/31/24 By: AP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
6.1	3.7	1802	4 of 4			2776 3769 6687	
2.7			2 of 4			" 6605	
4.3			3 of 4			" 6676	
3.9		↓	1 of 4			" 6654	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* (*Bubble Wrap*) (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y (N)
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:
	SHORT HOLD	

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
2024KGMUSCS2 (Sulfide 1of)	4oz Zinc Acetate		X						

Notes, Discrepancies, Resolutions: Limited volume for 2024KGMUSCSP2S3

Total Solids

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024 KGMUSC S1	K2407891-001	**59.3**	-	-	1	08/01/24 12:20	
2024 KGMUSC S2	K2407891-002	**63.6**	-	-	1	08/01/24 12:20	
2024 KGMUSC S3	K2407891-003	**64.8**	-	-	1	08/01/24 12:20	
2024 KGMUSC SP2 S1	K2407891-004	**65.6**	-	-	1	08/01/24 12:20	
2024 KGMUSC SP2 S2	K2407891-005	**74.0**	-	-	1	08/01/24 12:20	
2024 KGMUSC SP2 S3	K2407891-006	**75.5**	-	-	1	08/01/24 12:20	
2024 KGMLSH S3	K2407891-007	**67.9**	-	-	1	08/01/24 12:20	
2024 KGMWFSC S1	K2407891-008	**61.2**	-	-	1	08/01/24 12:20	
2024 KGMWFSC S2	K2407891-009	**64.0**	-	-	1	08/01/24 12:20	
2024 KGMWFSC S3	K2407891-010	**57.8**	-	-	1	08/01/24 12:20	
2024 KGM HJC S1	K2407891-011	**76.4**	-	-	1	08/01/24 12:20	
2024 KGM HJC S2	K2407891-012	**74.4**	-	-	1	08/01/24 12:20	
2024 KGM HJC S3	K2407891-013	**73.3**	-	-	1	08/01/24 12:20	
2024 KGMLSH S2	K2407891-014	**70.1**	-	-	1	08/01/24 12:20	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Replicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2024 KGMUSC S1	K2407891-001DUP	-	-	59.3	57.2	58.3	4	20	08/01/24
2024 KGMLSH S2	K2407891-014DUP	-	-	70.1	69.4	69.8	1	20	08/01/24

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.4 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method

Solids, Total Volatile

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024 KGMUSC S1	K2407891-001	**5.20**	0.10	-	1	08/01/24 12:20	
2024 KGMUSC S2	K2407891-002	**4.90**	0.10	-	1	08/01/24 12:20	
2024 KGMUSC S3	K2407891-003	**3.50**	0.10	-	1	08/01/24 12:20	
2024 KGMUSC SP2 S1	K2407891-004	**3.50**	0.10	-	1	08/01/24 12:20	
2024 KGMUSC SP2 S2	K2407891-005	**2.20**	0.10	-	1	08/01/24 12:20	
2024 KGMUSC SP2 S3	K2407891-006	**1.60**	0.10	-	1	08/01/24 12:20	
2024 KGMLSH S3	K2407891-007	**3.00**	0.10	-	1	08/01/24 12:20	
2024 KGMWFSC S1	K2407891-008	**6.60**	0.10	-	1	08/01/24 12:20	
2024 KGMWFSC S2	K2407891-009	**4.00**	0.10	-	1	08/01/24 12:20	
2024 KGMWFSC S3	K2407891-010	**5.30**	0.10	-	1	08/01/24 12:20	
2024 KGM HJC S1	K2407891-011	**0.80**	0.10	-	1	08/01/24 12:20	
2024 KGM HJC S2	K2407891-012	**1.40**	0.10	-	1	08/01/24 12:20	
2024 KGM HJC S3	K2407891-013	**2.30**	0.10	-	1	08/01/24 12:20	
2024 KGMLSH S2	K2407891-014	**3.00**	0.10	-	1	08/01/24 12:20	
Method Blank	K2407891-MB	ND U	0.10	-	1	08/01/24 12:20	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	160.4 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method

Replicate Sample Summary

Solids, Total Volatile

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2024 KGMUSC S1	K2407891-001DUP	0.10	-	5.20	5.10	5.15	2	20	08/01/24
2024 KGMLSH S2	K2407891-014DUP	0.10	-	3.00	3.10	3.05	3	20	08/01/24

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General Chemistry

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry

Sulfide, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024 KGMUSC S1	K2407891-001	ND U	1.6	0.5	1	08/01/24 17:25	8/1/24	*
2024 KGMUSC S2	K2407891-002	ND U	1.5	0.5	1	08/01/24 17:25	8/1/24	*
2024 KGMUSC S3	K2407891-003	ND U	1.5	0.5	1	08/01/24 17:25	8/1/24	*
2024 KGMUSC SP2 S1	K2407891-004	ND U	1.5	0.5	1	08/01/24 17:25	8/1/24	*
2024 KGMUSC SP2 S2	K2407891-005	ND U	1.3	0.4	1	08/01/24 17:25	8/1/24	*
2024 KGMUSC SP2 S3	K2407891-006	ND U	1.2	0.4	1	08/01/24 17:25	8/1/24	*
2024 KGMLSH S3	K2407891-007	ND U	1.4	0.5	1	08/01/24 17:25	8/1/24	*
2024 KGMWFSC S1	K2407891-008	ND U	1.5	0.5	1	08/01/24 17:25	8/1/24	*
2024 KGMWFSC S2	K2407891-009	ND U	1.5	0.5	1	08/01/24 17:25	8/1/24	*
2024 KGMWFSC S3	K2407891-010	ND U	1.7	0.6	1	08/01/24 17:25	8/1/24	*
2024 KGM HJC S1	K2407891-011	ND U	1.2	0.4	1	08/01/24 17:25	8/1/24	*
2024 KGM HJC S2	K2407891-012	ND U	1.3	0.4	1	08/01/24 17:25	8/1/24	*
2024 KGM HJC S3	K2407891-013	ND U	1.3	0.4	1	08/01/24 17:25	8/1/24	*
2024 KGMLSH S2	K2407891-014	ND U	1.3	0.5	1	08/01/24 17:25	8/1/24	*
Method Blank	K2407891-MB1	ND U	1.0	0.3	1	08/01/24 17:25	8/1/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/01/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024 KGM HJC S1	**Units:**	mg/Kg
Lab Code:	K2407891-011	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407891-011DUP Result	Triplicate K2407891-011TRP Result	Average	RSD	RSD Limit
Sulfide, Total	1.3	0.4	ND	ND	ND	NC	NC	20

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Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/1/24
		Date Extracted:	08/1/24

Duplicate Matrix Spike Summary
Sulfide, Total

Sample Name:	2024 KGM HJC S1	**Units:**	mg/Kg
Lab Code:	K2407891-011	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

		Matrix Spike K2407891-011MS			Duplicate Matrix Spike K2407891-011DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfide, Total	ND U	480	490	97	480	490	98	28-175	<1	20

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/01/24
Sample Matrix:	Soil	**Date Extracted:**	08/01/24

Lab Control Sample Summary
Sulfide, Total

Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	849403

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407891-LCS1	410	390	106	39-166

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

Continuing Calibration Verification (CCV) Summary

Sulfide, Total

Analysis Method: PSEP Sulfide **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	849403	KQ2411960-01	08/01/24 17:25	0.582	0.571	98	90-110
CCV2	849403	KQ2411960-02	08/01/24 17:25	0.582	0.571	98	90-110
CCV3	849403	KQ2411960-03	08/01/24 17:25	0.582	0.570	98	90-110
CCV4	849403	KQ2411960-04	08/01/24 17:25	0.582	0.568	98	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2407891
Project: Coeur AK Biomonitoring

Continuing Calibration Blank (CCB) Summary
Sulfide, Total

Analysis Method: PSEP Sulfide **Units:**mg/Kg

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	849403	KQ2411960-05	08/01/24 17:25	1.0	0.3	ND	U
CCB2	849403	KQ2411960-06	08/01/24 17:25	1.0	0.3	ND	U
CCB3	849403	KQ2411960-07	08/01/24 17:25	1.0	0.3	ND	U
CCB4	849403	KQ2411960-08	08/01/24 17:25	1.0	0.3	ND	U

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 - 07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	ALS SOP	**Basis:**	Dry, per Method

Carbon, Total Organic (TOC)

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024 KGMUSC S1	K2407891-001	**1.28**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMUSC S2	K2407891-002	**0.80**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMUSC S3	K2407891-003	**0.71**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMUSC SP2 S1	K2407891-004	**0.74**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMUSC SP2 S2	K2407891-005	**0.79**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMUSC SP2 S3	K2407891-006	**0.34**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMLSH S3	K2407891-007	**0.41**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGMWFSC S1	K2407891-008	**0.34**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMWFSC S2	K2407891-009	**1.38**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGMWFSC S3	K2407891-010	**2.03**	0.10	0.005	1	08/05/24 12:06	8/2/24	
2024 KGM HJC S1	K2407891-011	**0.05 J**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM HJC S2	K2407891-012	**0.41**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGM HJC S3	K2407891-013	**0.11**	0.10	0.005	1	08/02/24 09:22	8/2/24	
2024 KGMLSH S2	K2407891-014	**0.39**	0.10	0.005	1	08/02/24 09:22	8/2/24	
Method Blank	K2407891-MB1	ND U	0.10	0.005	1	08/02/24 09:22	NA	
Method Blank	K2407891-MB2	ND U	0.10	0.005	1	08/05/24 12:06	NA	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/05/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024 KGMUSC S1	**Units:**	Percent
Lab Code:	K2407891-001	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	None		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407891-001DUP Result	Triplicate K2407891-001TRP Result	Average	RSD	RSD Limit
Carbon, Total Organic (TOC)	0.10	0.005	1.28	1.28	1.30	1.29	<1	27

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SuperSet Reference:24-0000704631 rev 00

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/02/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024 KGMLSH S3	**Units:**	Percent
Lab Code:	K2407891-007	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	None		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407891-007DUP Result	Triplicate K2407891-007TRP Result	Average	RSD	RSD Limit
Carbon, Total Organic (TOC)	0.10	0.005	0.41	0.40	0.41	0.407	1	27

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Printed 8/21/2024 2:29:38 PM

SuperSet Reference:24-0000704631 rev 00

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/5/24
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	2024 KGMUSC S1	**Units:**	Percent
Lab Code:	K2407891-001	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	None		

		Matrix Spike			**Duplicate Matrix Spike**					
		K2407891-001MS			K2407891-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic (TOC)	1.28	3.65	2.40	99	3.62	2.41	97	69-123	2	27

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/2/24
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	2024 KGMLSH S3	**Units:**	Percent
Lab Code:	K2407891-007	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K2407891-007MS			K2407891-007DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic (TOC)	0.41	2.87	2.46	100	2.80	2.42	99	69-123	1	27

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/02/24
Sample Matrix:	Soil	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method
		Analysis Lot:	849441

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407891-LCS1	3.23	2.99	108	74-118

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/05/24
Sample Matrix:	Soil	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method
		Analysis Lot:	849463

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407891-LCS2	3.22	2.99	108	74-118

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:** Percent

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	849441	KQ2411967-07	08/02/24 09:22	12.0	12.2	102	90-110
CCV2	849441	KQ2411967-08	08/02/24 09:22	12.0	12.2	102	90-110
CCV3	849441	KQ2411967-09	08/02/24 09:22	12.0	12.2	102	90-110
CCV4	849441	KQ2411967-10	08/02/24 09:22	12.0	12.2	102	90-110
CCV5	849463	KQ2411984-07	08/05/24 12:06	12.0	12.2	102	90-110
CCV6	849463	KQ2411984-08	08/05/24 12:06	12.0	12.1	101	90-110
CCV7	849463	KQ2411984-09	08/05/24 12:06	12.0	12.2	102	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2407891
Project: Coeur AK Biomonitoring

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:**Percent

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	849441	KQ2411967-11	08/02/24 09:22	0.10	0.005	ND	U
CCB2	849441	KQ2411967-12	08/02/24 09:22	0.10	0.005	ND	U
CCB3	849441	KQ2411967-13	08/02/24 09:22	0.10	0.005	ND	U
CCB4	849441	KQ2411967-14	08/02/24 09:22	0.10	0.005	ND	U
CCB5	849463	KQ2411984-10	08/05/24 12:06	0.10	0.005	ND	U
CCB6	849463	KQ2411984-11	08/05/24 12:06	0.10	0.005	ND	U
CCB7	849463	KQ2411984-12	08/05/24 12:06	0.10	0.005	ND	U

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMUSC S1
Lab Code: K2407891-001

Sand Fraction: Dry Weight (Grams)	27.0409
Sand Fraction: Weight Recovered (Grams)	27.0058
Sand Fraction: Percent Recovery	99.87

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.0797	0.33
Gravel, Fine	-2 Ø to -1 Ø	0.9013	3.77
Sand, Very Coarse	-1 to 0 Ø	2.8997	12.12
Sand, Coarse	0 to 1 Ø	8.4204	35.19
Sand, Medium	1 to 2 Ø	7.7817	32.52
Sand, Fine	2 to 3 Ø	5.6207	23.49
Sand, Very Fine	3 to 4 Ø	0.8520	3.56
75.0 µm	4 Ø	0.7150	2.99
31.3 µm	5 Ø	0.1950	0.81
15.6 µm	6 Ø	0.0950	0.40
7.8 µm	7 Ø	0.0400	0.17
3.9 µm	8 Ø	0.0300	0.13
1.95 µm	9 Ø	0.0050	0.02
0.98 µm	> 10 Ø	0.0000	0.00
		27.6355	115.50

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMUSC S2
Lab Code: K2407891-002

Sand Fraction: Dry Weight (Grams)	38.5320
Sand Fraction: Weight Recovered (Grams)	38.4687
Sand Fraction: Percent Recovery	99.84

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	2.1697	6.15
Gravel, Fine	-2 Ø to -1 Ø	3.1132	8.83
Sand, Very Coarse	-1 to 0 Ø	11.8360	33.56
Sand, Coarse	0 to 1 Ø	15.6803	44.45
Sand, Medium	1 to 2 Ø	4.1003	11.62
Sand, Fine	2 to 3 Ø	1.3584	3.85
Sand, Very Fine	3 to 4 Ø	0.1213	0.34
75.0 µm	4 Ø	0.1000	0.28
31.3 µm	5 Ø	0.1000	0.28
15.6 µm	6 Ø	0.0250	0.07
7.8 µm	7 Ø	0.0050	0.01
3.9 µm	8 Ø	0.0050	0.01
1.95 µm	9 Ø	0.0050	0.01
0.98 µm	> 10 Ø	0.0000	0.00
		38.6192	109.49

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMUSC S3
Lab Code: K2407891-003

Sand Fraction:	Dry Weight (Grams)	33.7707
Sand Fraction:	Weight Recovered (Grams)	28.5976
Sand Fraction:	Percent Recovery	84.68

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	2.6693	9.67
Gravel, Fine	-2 Ø to -1 Ø	3.6593	13.26
Sand, Very Coarse	-1 to 0 Ø	10.7393	38.91
Sand, Coarse	0 to 1 Ø	8.2422	29.86
Sand, Medium	1 to 2 Ø	2.4663	8.94
Sand, Fine	2 to 3 Ø	0.6831	2.48
Sand, Very Fine	3 to 4 Ø	0.0665	0.24
75.0 µm	4 Ø	0.0500	0.18
31.3 µm	5 Ø	0.0000	0.00
15.6 µm	6 Ø	0.0000	0.00
7.8 µm	7 Ø	0.0000	0.00
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		28.5760	103.54

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMUSC SP2 S1
Lab Code: K2407891-004

Sand Fraction:	Dry Weight (Grams)	25.1830
Sand Fraction:	Weight Recovered (Grams)	24.9859
Sand Fraction:	Percent Recovery	99.22

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	8.9259	37.64
Gravel, Fine	-2 Ø to -1 Ø	6.5781	27.74
Sand, Very Coarse	-1 to 0 Ø	3.4674	14.62
Sand, Coarse	0 to 1 Ø	2.2845	9.63
Sand, Medium	1 to 2 Ø	1.6185	6.82
Sand, Fine	2 to 3 Ø	1.7789	7.50
Sand, Very Fine	3 to 4 Ø	0.2394	1.01
75.0 µm	4 Ø	0.1850	0.78
31.3 µm	5 Ø	0.0050	0.02
15.6 µm	6 Ø	0.0100	0.04
7.8 µm	7 Ø	0.0900	0.38
3.9 µm	8 Ø	0.0050	0.02
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		25.1877	106.21

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMUSC SP2 S2
Lab Code: K2407891-005

Sand Fraction: Dry Weight (Grams)	29.4929
Sand Fraction: Weight Recovered (Grams)	29.4926
Sand Fraction: Percent Recovery	100.00

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	13.9601	51.96
Gravel, Fine	-2 Ø to -1 Ø	5.3063	19.75
Sand, Very Coarse	-1 to 0 Ø	5.2398	19.50
Sand, Coarse	0 to 1 Ø	3.8308	14.26
Sand, Medium	1 to 2 Ø	0.9208	3.43
Sand, Fine	2 to 3 Ø	0.1958	0.73
Sand, Very Fine	3 to 4 Ø	0.0160	0.06
75.0 µm	4 Ø	0.0200	0.07
31.3 µm	5 Ø	0.0350	0.13
15.6 µm	6 Ø	0.0000	0.00
7.8 µm	7 Ø	0.0000	0.00
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		29.5246	109.88

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMUSC SP2 S3
Lab Code: K2407891-006

Sand Fraction: Dry Weight (Grams)	35.0251
Sand Fraction: Weight Recovered (Grams)	35.0013
Sand Fraction: Percent Recovery	99.93

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	10.6865	32.69
Gravel, Fine	-2 Ø to -1 Ø	12.9562	39.63
Sand, Very Coarse	-1 to 0 Ø	7.4986	22.93
Sand, Coarse	0 to 1 Ø	2.6381	8.07
Sand, Medium	1 to 2 Ø	0.7648	2.34
Sand, Fine	2 to 3 Ø	0.3803	1.16
Sand, Very Fine	3 to 4 Ø	0.0406	0.12
75.0 µm	4 Ø	0.0100	0.03
31.3 µm	5 Ø	0.0000	0.00
15.6 µm	6 Ø	0.0000	0.00
7.8 µm	7 Ø	0.0000	0.00
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		34.9751	106.97

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMLSH S3
Lab Code: K2407891-007

Sand Fraction: Dry Weight (Grams)	29.9400
Sand Fraction: Weight Recovered (Grams)	29.9022
Sand Fraction: Percent Recovery	99.87

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	1.2382	4.23
Gravel, Fine	-2 Ø to -1 Ø	1.3077	4.46
Sand, Very Coarse	-1 to 0 Ø	4.0118	13.70
Sand, Coarse	0 to 1 Ø	10.3618	35.38
Sand, Medium	1 to 2 Ø	7.9008	26.97
Sand, Fine	2 to 3 Ø	4.5707	15.60
Sand, Very Fine	3 to 4 Ø	0.3851	1.31
75.0 µm	4 Ø	0.1850	0.63
31.3 µm	5 Ø	0.0450	0.15
15.6 µm	6 Ø	0.0100	0.03
7.8 µm	7 Ø	0.0100	0.03
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		30.0261	102.51

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMWFSC S1
Lab Code: K2407891-008

Sand Fraction:	Dry Weight (Grams)	22.2044
Sand Fraction:	Weight Recovered (Grams)	22.1422
Sand Fraction:	Percent Recovery	99.72

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	4.1938	19.69
Gravel, Fine	-2 Ø to -1 Ø	1.0767	5.06
Sand, Very Coarse	-1 to 0 Ø	2.4089	11.31
Sand, Coarse	0 to 1 Ø	3.5032	16.45
Sand, Medium	1 to 2 Ø	3.7407	17.56
Sand, Fine	2 to 3 Ø	5.7991	27.23
Sand, Very Fine	3 to 4 Ø	1.1273	5.29
75.0 µm	4 Ø	0.5800	2.72
31.3 µm	5 Ø	0.1600	0.75
15.6 µm	6 Ø	0.0950	0.45
7.8 µm	7 Ø	0.0200	0.09
3.9 µm	8 Ø	0.0300	0.14
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		22.7347	106.75

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMWFSC S2
Lab Code: K2407891-009

Sand Fraction: Dry Weight (Grams)	26.5024
Sand Fraction: Weight Recovered (Grams)	26.4139
Sand Fraction: Percent Recovery	99.67

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	3.0349	11.88
Gravel, Fine	-2 Ø to -1 Ø	4.2214	16.52
Sand, Very Coarse	-1 to 0 Ø	6.3330	24.79
Sand, Coarse	0 to 1 Ø	5.7321	22.43
Sand, Medium	1 to 2 Ø	3.7553	14.70
Sand, Fine	2 to 3 Ø	2.9541	11.56
Sand, Very Fine	3 to 4 Ø	0.3110	1.22
75.0 µm	4 Ø	0.1200	0.47
31.3 µm	5 Ø	0.2250	0.88
15.6 µm	6 Ø	0.0200	0.08
7.8 µm	7 Ø	0.0650	0.25
3.9 µm	8 Ø	0.0650	0.25
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		26.8368	105.03

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMWFSC S3
Lab Code: K2407891-010

Sand Fraction:	Dry Weight (Grams)	22.3192
Sand Fraction:	Weight Recovered (Grams)	22.2185
Sand Fraction:	Percent Recovery	99.55

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	0.0000	0.00
Gravel, Fine	-2 Ø to -1 Ø	0.4964	2.21
Sand, Very Coarse	-1 to 0 Ø	1.6125	7.17
Sand, Coarse	0 to 1 Ø	4.2718	19.01
Sand, Medium	1 to 2 Ø	5.8358	25.96
Sand, Fine	2 to 3 Ø	8.0520	35.82
Sand, Very Fine	3 to 4 Ø	1.4769	6.57
75.0 µm	4 Ø	1.2000	5.34
31.3 µm	5 Ø	0.3300	1.47
15.6 µm	6 Ø	0.1800	0.80
7.8 µm	7 Ø	0.0150	0.07
3.9 µm	8 Ø	0.0250	0.11
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		23.4954	104.54

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM HJC S1
Lab Code: K2407891-011

Sand Fraction: Dry Weight (Grams)	36.0100
Sand Fraction: Weight Recovered (Grams)	35.8847
Sand Fraction: Percent Recovery	99.65

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	3.6827	10.49
Gravel, Fine	-2 Ø to -1 Ø	12.6959	36.18
Sand, Very Coarse	-1 to 0 Ø	9.7118	27.67
Sand, Coarse	0 to 1 Ø	5.0289	14.33
Sand, Medium	1 to 2 Ø	2.8081	8.00
Sand, Fine	2 to 3 Ø	1.7874	5.09
Sand, Very Fine	3 to 4 Ø	0.1533	0.44
75.0 µm	4 Ø	0.0150	0.04
31.3 µm	5 Ø	0.0300	0.09
15.6 µm	6 Ø	0.0000	0.00
7.8 µm	7 Ø	0.0000	0.00
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		35.9131	102.34

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM HJC S2
Lab Code: K2407891-012

Sand Fraction: Dry Weight (Grams)	31.3885
Sand Fraction: Weight Recovered (Grams)	31.3702
Sand Fraction: Percent Recovery	99.94

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	7.5971	22.86
Gravel, Fine	-2 Ø to -1 Ø	5.9659	17.95
Sand, Very Coarse	-1 to 0 Ø	2.9626	8.91
Sand, Coarse	0 to 1 Ø	2.7943	8.41
Sand, Medium	1 to 2 Ø	3.0636	9.22
Sand, Fine	2 to 3 Ø	6.5649	19.75
Sand, Very Fine	3 to 4 Ø	1.8838	5.67
75.0 µm	4 Ø	1.9100	5.75
31.3 µm	5 Ø	0.5000	1.50
15.6 µm	6 Ø	0.1500	0.45
7.8 µm	7 Ø	0.0050	0.02
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		33.3972	100.48

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGM HJC S3
Lab Code: K2407891-013

Sand Fraction:	Dry Weight (Grams)	28.7145
Sand Fraction:	Weight Recovered (Grams)	28.7489
Sand Fraction:	Percent Recovery	100.12

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	3.6573	12.99
Gravel, Fine	-2 Ø to -1 Ø	8.5930	30.53
Sand, Very Coarse	-1 to 0 Ø	5.3846	19.13
Sand, Coarse	0 to 1 Ø	3.9356	13.98
Sand, Medium	1 to 2 Ø	3.5085	12.46
Sand, Fine	2 to 3 Ø	3.3287	11.83
Sand, Very Fine	3 to 4 Ø	0.3086	1.10
75.0 µm	4 Ø	0.1050	0.37
31.3 µm	5 Ø	0.0050	0.02
15.6 µm	6 Ø	0.0000	0.00
7.8 µm	7 Ø	0.0000	0.00
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		28.8263	102.40

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMLSH S2
Lab Code: K2407891-014

Sand Fraction:	Dry Weight (Grams)	24.2139
Sand Fraction:	Weight Recovered (Grams)	24.1821
Sand Fraction:	Percent Recovery	99.87

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	1.3119	5.34
Gravel, Fine	-2 Ø to -1 Ø	3.3034	13.44
Sand, Very Coarse	-1 to 0 Ø	6.1241	24.92
Sand, Coarse	0 to 1 Ø	7.4275	30.22
Sand, Medium	1 to 2 Ø	3.7455	15.24
Sand, Fine	2 to 3 Ø	2.0038	8.15
Sand, Very Fine	3 to 4 Ø	0.1934	0.79
75.0 µm	4 Ø	0.0800	0.33
31.3 µm	5 Ø	0.0050	0.02
15.6 µm	6 Ø	0.0350	0.14
7.8 µm	7 Ø	0.0050	0.02
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		24.2346	98.60

dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	09/03/24

Particle Size Determination
ASTM D422M

Sample Name: 2024 KGMLSH S2
Lab Code: K2407891-014DUP

Sand Fraction: Dry Weight (Grams)	25.6858
Sand Fraction: Weight Recovered (Grams)	25.6525
Sand Fraction: Percent Recovery	99.87

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	<-2 Ø	5.5912	22.92
Gravel, Fine	-2 Ø to -1 Ø	2.7137	11.13
Sand, Very Coarse	-1 to 0 Ø	6.3326	25.96
Sand, Coarse	0 to 1 Ø	6.4126	26.29
Sand, Medium	1 to 2 Ø	2.9929	12.27
Sand, Fine	2 to 3 Ø	1.4427	5.91
Sand, Very Fine	3 to 4 Ø	0.1352	0.55
75.0 µm	4 Ø	0.0800	0.33
31.3 µm	5 Ø	0.0000	0.00
15.6 µm	6 Ø	0.0400	0.16
7.8 µm	7 Ø	0.0050	0.02
3.9 µm	8 Ø	0.0000	0.00
1.95 µm	9 Ø	0.0000	0.00
0.98 µm	> 10 Ø	0.0000	0.00
		25.7459	105.55

Metals

ALS Environmental—Kelso Laboratory
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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 14:30
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMUSC S1	**Basis:**	Dry
Lab Code:	K2407891-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**17000**	mg/Kg	3.0	0.9	5	08/14/24 11:36	08/08/24	
Arsenic	200.8	**19.9**	mg/Kg	0.76	0.09	5	08/14/24 11:36	08/08/24	
Cadmium	200.8	**0.776**	mg/Kg	0.030	0.011	5	08/14/24 11:36	08/08/24	
Chromium	200.8	**85.7**	mg/Kg	0.30	0.09	5	08/14/24 11:36	08/08/24	
Copper	200.8	**60.6**	mg/Kg	0.15	0.06	5	08/14/24 11:36	08/08/24	
Lead	200.8	**4.37**	mg/Kg	0.076	0.030	5	08/14/24 11:36	08/08/24	
Mercury	7471B	**0.046**	mg/Kg	0.030	0.003	1	08/05/24 09:57	08/02/24	
Nickel	200.8	**65.1**	mg/Kg	0.30	0.05	5	08/14/24 11:36	08/08/24	
Selenium	200.8	**2.3**	mg/Kg	1.5	0.1	5	08/14/24 11:36	08/08/24	
Silver	200.8	**0.109**	mg/Kg	0.030	0.006	5	08/14/24 11:36	08/08/24	
Zinc	200.8	**130**	mg/Kg	0.76	0.30	5	08/14/24 11:36	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 14:30
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMUSC S2	**Basis:**	Dry
Lab Code:	K2407891-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**17400**	mg/Kg	2.6	0.8	5	08/14/24 11:51	08/08/24	
Arsenic	200.8	**18.4**	mg/Kg	0.66	0.08	5	08/14/24 11:51	08/08/24	
Cadmium	200.8	**0.863**	mg/Kg	0.026	0.009	5	08/14/24 11:51	08/08/24	
Chromium	200.8	**97.0**	mg/Kg	0.26	0.08	5	08/14/24 11:51	08/08/24	
Copper	200.8	**56.3**	mg/Kg	0.13	0.05	5	08/14/24 11:51	08/08/24	
Lead	200.8	**4.18**	mg/Kg	0.066	0.026	5	08/14/24 11:51	08/08/24	
Mercury	7471B	**0.028**	mg/Kg	0.027	0.003	1	08/05/24 10:05	08/02/24	
Nickel	200.8	**71.9**	mg/Kg	0.26	0.04	5	08/14/24 11:51	08/08/24	
Selenium	200.8	**2.3**	mg/Kg	1.3	0.1	5	08/14/24 11:51	08/08/24	
Silver	200.8	**0.084**	mg/Kg	0.026	0.005	5	08/14/24 11:51	08/08/24	
Zinc	200.8	**146**	mg/Kg	0.66	0.26	5	08/14/24 11:51	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 14:30
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMUSC S3	**Basis:**	Dry
Lab Code:	K2407891-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**19000**	mg/Kg	2.7	0.8	5	08/14/24 11:54	08/08/24	
Arsenic	200.8	**19.8**	mg/Kg	0.69	0.08	5	08/14/24 11:54	08/08/24	
Cadmium	200.8	**0.777**	mg/Kg	0.027	0.010	5	08/14/24 11:54	08/08/24	
Chromium	200.8	**112**	mg/Kg	0.27	0.08	5	08/14/24 11:54	08/08/24	
Copper	200.8	**61.9**	mg/Kg	0.14	0.05	5	08/14/24 11:54	08/08/24	
Lead	200.8	**4.29**	mg/Kg	0.069	0.027	5	08/14/24 11:54	08/08/24	
Mercury	7471B	**0.075**	mg/Kg	0.026	0.003	1	08/05/24 10:07	08/02/24	
Nickel	200.8	**77.1**	mg/Kg	0.27	0.04	5	08/14/24 11:54	08/08/24	
Selenium	200.8	**2.5**	mg/Kg	1.4	0.1	5	08/14/24 11:54	08/08/24	
Silver	200.8	**0.091**	mg/Kg	0.027	0.005	5	08/14/24 11:54	08/08/24	
Zinc	200.8	**141**	mg/Kg	0.69	0.27	5	08/14/24 11:54	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 13:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMUSC SP2 S1	**Basis:**	Dry
Lab Code:	K2407891-004		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**14700**		mg/Kg	2.7	0.8	5	08/14/24 12:09	08/08/24	
Arsenic	200.8	**19.3**		mg/Kg	0.68	0.08	5	08/14/24 12:09	08/08/24	
Cadmium	200.8	**0.618**		mg/Kg	0.027	0.009	5	08/14/24 12:09	08/08/24	
Chromium	200.8	**64.5**		mg/Kg	0.27	0.08	5	08/14/24 12:09	08/08/24	
Copper	200.8	**45.6**		mg/Kg	0.14	0.05	5	08/14/24 12:09	08/08/24	
Lead	200.8	**2.42**		mg/Kg	0.068	0.027	5	08/14/24 12:09	08/08/24	
Mercury	7471B	**0.018**	**J**	mg/Kg	0.028	0.003	1	08/05/24 10:09	08/02/24	
Nickel	200.8	**53.6**		mg/Kg	0.27	0.04	5	08/14/24 12:09	08/08/24	
Selenium	200.8	**1.2**	**J**	mg/Kg	1.4	0.1	5	08/14/24 12:09	08/08/24	
Silver	200.8	**0.051**		mg/Kg	0.027	0.005	5	08/14/24 12:09	08/08/24	
Zinc	200.8	**104**		mg/Kg	0.68	0.27	5	08/14/24 12:09	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 13:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMUSC SP2 S2	**Basis:**	Dry
Lab Code:	K2407891-005		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13400**	mg/Kg	2.3	0.7	5	08/14/24 12:11	08/08/24	
Arsenic	200.8	**16.9**	mg/Kg	0.59	0.07	5	08/14/24 12:11	08/08/24	
Cadmium	200.8	**0.327**	mg/Kg	0.023	0.008	5	08/14/24 12:11	08/08/24	
Chromium	200.8	**83.7**	mg/Kg	0.23	0.07	5	08/14/24 12:11	08/08/24	
Copper	200.8	**34.3**	mg/Kg	0.12	0.05	5	08/14/24 12:11	08/08/24	
Lead	200.8	**1.52**	mg/Kg	0.059	0.023	5	08/14/24 12:11	08/08/24	
Mercury	7471B	**0.007 J**	mg/Kg	0.023	0.002	1	08/05/24 10:10	08/02/24	
Nickel	200.8	**49.8**	mg/Kg	0.23	0.04	5	08/14/24 12:11	08/08/24	
Selenium	200.8	**0.5 J**	mg/Kg	1.2	0.1	5	08/14/24 12:11	08/08/24	
Silver	200.8	**0.032**	mg/Kg	0.023	0.005	5	08/14/24 12:11	08/08/24	
Zinc	200.8	**69.8**	mg/Kg	0.59	0.23	5	08/14/24 12:11	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 13:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMUSC SP2 S3	**Basis:**	Dry
Lab Code:	K2407891-006		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**11100**		mg/Kg	2.3	0.7	5	08/14/24 12:14	08/08/24	
Arsenic	200.8	**10.1**		mg/Kg	0.57	0.07	5	08/14/24 12:14	08/08/24	
Cadmium	200.8	**0.346**		mg/Kg	0.023	0.008	5	08/14/24 12:14	08/08/24	
Chromium	200.8	**51.0**		mg/Kg	0.23	0.07	5	08/14/24 12:14	08/08/24	
Copper	200.8	**27.4**		mg/Kg	0.11	0.05	5	08/14/24 12:14	08/08/24	
Lead	200.8	**1.35**		mg/Kg	0.057	0.023	5	08/14/24 12:14	08/08/24	
Mercury	7471B	**0.012**	**J**	mg/Kg	0.022	0.002	1	08/05/24 10:12	08/02/24	
Nickel	200.8	**44.2**		mg/Kg	0.23	0.03	5	08/14/24 12:14	08/08/24	
Selenium	200.8	**0.5**	**J**	mg/Kg	1.1	0.1	5	08/14/24 12:14	08/08/24	
Silver	200.8	**0.025**		mg/Kg	0.023	0.005	5	08/14/24 12:14	08/08/24	
Zinc	200.8	**63.1**		mg/Kg	0.57	0.23	5	08/14/24 12:14	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 10:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMLSH S3	**Basis:**	Dry
Lab Code:	K2407891-007		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**18400**		mg/Kg	2.7	0.8	5	08/14/24 12:17	08/08/24	
Arsenic	200.8	**35.0**		mg/Kg	0.67	0.08	5	08/14/24 12:17	08/08/24	
Cadmium	200.8	**0.226**		mg/Kg	0.027	0.009	5	08/14/24 12:17	08/08/24	
Chromium	200.8	**37.0**		mg/Kg	0.27	0.08	5	08/14/24 12:17	08/08/24	
Copper	200.8	**86.4**		mg/Kg	0.13	0.05	5	08/14/24 12:17	08/08/24	
Lead	200.8	**8.93**		mg/Kg	0.067	0.027	5	08/14/24 12:17	08/08/24	
Mercury	7471B	**0.025**	**J**	mg/Kg	0.027	0.003	1	08/05/24 10:13	08/02/24	
Nickel	200.8	**35.6**		mg/Kg	0.27	0.04	5	08/14/24 12:17	08/08/24	
Selenium	200.8	**1.3**	**J**	mg/Kg	1.3	0.1	5	08/14/24 12:17	08/08/24	
Silver	200.8	**0.135**		mg/Kg	0.027	0.005	5	08/14/24 12:17	08/08/24	
Zinc	200.8	**111**		mg/Kg	0.67	0.27	5	08/14/24 12:17	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 10:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMWFSC S1	**Basis:**	Dry
Lab Code:	K2407891-008		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13700**	mg/Kg	2.9	0.9	5	08/14/24 12:19	08/08/24	
Arsenic	200.8	**33.8**	mg/Kg	0.73	0.09	5	08/14/24 12:19	08/08/24	
Cadmium	200.8	**2.16**	mg/Kg	0.029	0.010	5	08/14/24 12:19	08/08/24	
Chromium	200.8	**21.7**	mg/Kg	0.29	0.09	5	08/14/24 12:19	08/08/24	
Copper	200.8	**75.4**	mg/Kg	0.15	0.06	5	08/14/24 12:19	08/08/24	
Lead	200.8	**11.7**	mg/Kg	0.073	0.029	5	08/14/24 12:19	08/08/24	
Mercury	7471B	**0.138**	mg/Kg	0.027	0.003	1	08/05/24 10:18	08/02/24	
Nickel	200.8	**56.3**	mg/Kg	0.29	0.04	5	08/14/24 12:19	08/08/24	
Selenium	200.8	**3.2**	mg/Kg	1.5	0.1	5	08/14/24 12:19	08/08/24	
Silver	200.8	**0.228**	mg/Kg	0.029	0.006	5	08/14/24 12:19	08/08/24	
Zinc	200.8	**273**	mg/Kg	0.73	0.29	5	08/14/24 12:19	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 10:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMWFSC S2	**Basis:**	Dry
Lab Code:	K2407891-009		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13600**	mg/Kg	2.7	0.8	5	08/14/24 12:22	08/08/24	
Arsenic	200.8	**25.8**	mg/Kg	0.69	0.08	5	08/14/24 12:22	08/08/24	
Cadmium	200.8	**1.62**	mg/Kg	0.027	0.010	5	08/14/24 12:22	08/08/24	
Chromium	200.8	**21.2**	mg/Kg	0.27	0.08	5	08/14/24 12:22	08/08/24	
Copper	200.8	**65.5**	mg/Kg	0.14	0.05	5	08/14/24 12:22	08/08/24	
Lead	200.8	**10.0**	mg/Kg	0.069	0.027	5	08/14/24 12:22	08/08/24	
Mercury	7471B	**0.075**	mg/Kg	0.029	0.003	1	08/05/24 10:20	08/02/24	
Nickel	200.8	**45.6**	mg/Kg	0.27	0.04	5	08/14/24 12:22	08/08/24	
Selenium	200.8	**4.4**	mg/Kg	1.4	0.1	5	08/14/24 12:22	08/08/24	
Silver	200.8	**0.205**	mg/Kg	0.027	0.005	5	08/14/24 12:22	08/08/24	
Zinc	200.8	**252**	mg/Kg	0.69	0.27	5	08/14/24 12:22	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24 10:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMWFSC S3	**Basis:**	Dry
Lab Code:	K2407891-010		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**14000**	mg/Kg	2.8	0.8	5	08/14/24 12:24	08/08/24	
Arsenic	200.8	**34.8**	mg/Kg	0.70	0.08	5	08/14/24 12:24	08/08/24	
Cadmium	200.8	**1.69**	mg/Kg	0.028	0.010	5	08/14/24 12:24	08/08/24	
Chromium	200.8	**23.2**	mg/Kg	0.28	0.08	5	08/14/24 12:24	08/08/24	
Copper	200.8	**78.9**	mg/Kg	0.14	0.06	5	08/14/24 12:24	08/08/24	
Lead	200.8	**12.7**	mg/Kg	0.070	0.028	5	08/14/24 12:24	08/08/24	
Mercury	7471B	**0.132**	mg/Kg	0.030	0.003	1	08/05/24 10:22	08/02/24	
Nickel	200.8	**57.4**	mg/Kg	0.28	0.04	5	08/14/24 12:24	08/08/24	
Selenium	200.8	**3.0**	mg/Kg	1.4	0.1	5	08/14/24 12:24	08/08/24	
Silver	200.8	**0.220**	mg/Kg	0.028	0.006	5	08/14/24 12:24	08/08/24	
Zinc	200.8	**271**	mg/Kg	0.70	0.28	5	08/14/24 12:24	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 15:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM HJC S1	**Basis:**	Dry
Lab Code:	K2407891-011		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**5190**	mg/Kg	2.3	0.7	5	08/14/24 12:27	08/08/24	
Arsenic	200.8	**0.66**	mg/Kg	0.58	0.07	5	08/14/24 12:27	08/08/24	
Cadmium	200.8	**0.031**	mg/Kg	0.023	0.008	5	08/14/24 12:27	08/08/24	
Chromium	200.8	**10.2**	mg/Kg	0.23	0.07	5	08/14/24 12:27	08/08/24	
Copper	200.8	**43.8**	mg/Kg	0.12	0.05	5	08/14/24 12:27	08/08/24	
Lead	200.8	**0.565**	mg/Kg	0.058	0.023	5	08/14/24 12:27	08/08/24	
Mercury	7471B	ND U	mg/Kg	0.022	0.002	1	08/05/24 10:23	08/02/24	
Nickel	200.8	**6.82**	mg/Kg	0.23	0.03	5	08/14/24 12:27	08/08/24	
Selenium	200.8	ND U	mg/Kg	1.2	0.1	5	08/14/24 12:27	08/08/24	
Silver	200.8	**0.007 J**	mg/Kg	0.023	0.005	5	08/14/24 12:27	08/08/24	
Zinc	200.8	**25.6**	mg/Kg	0.58	0.23	5	08/14/24 12:27	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 15:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM HJC S2	**Basis:**	Dry
Lab Code:	K2407891-012		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10300**	mg/Kg	2.3	0.7	5	08/14/24 12:29	08/08/24	
Arsenic	200.8	**1.52**	mg/Kg	0.58	0.07	5	08/14/24 12:29	08/08/24	
Cadmium	200.8	**0.063**	mg/Kg	0.023	0.008	5	08/14/24 12:29	08/08/24	
Chromium	200.8	**30.5**	mg/Kg	0.23	0.07	5	08/14/24 12:29	08/08/24	
Copper	200.8	**67.2**	mg/Kg	0.12	0.05	5	08/14/24 12:29	08/08/24	
Lead	200.8	**1.28**	mg/Kg	0.058	0.023	5	08/14/24 12:29	08/08/24	
Mercury	7471B	**0.035**	mg/Kg	0.025	0.002	1	08/05/24 10:25	08/02/24	
Nickel	200.8	**19.0**	mg/Kg	0.23	0.03	5	08/14/24 12:29	08/08/24	
Selenium	200.8	**0.2**	mg/Kg	1.2	0.1	5	08/14/24 12:29	08/08/24	**J**
Silver	200.8	**0.056**	mg/Kg	0.023	0.005	5	08/14/24 12:29	08/08/24	
Zinc	200.8	**41.9**	mg/Kg	0.58	0.23	5	08/14/24 12:29	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 15:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGM HJC S3	**Basis:**	Dry
Lab Code:	K2407891-013		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**5580**		mg/Kg	2.3	0.7	5	08/14/24 12:45	08/08/24	
Arsenic	200.8	**0.71**		mg/Kg	0.57	0.07	5	08/14/24 12:45	08/08/24	
Cadmium	200.8	**0.030**		mg/Kg	0.023	0.008	5	08/14/24 12:45	08/08/24	
Chromium	200.8	**16.2**		mg/Kg	0.23	0.07	5	08/14/24 12:45	08/08/24	
Copper	200.8	**34.4**		mg/Kg	0.11	0.05	5	08/14/24 12:45	08/08/24	
Lead	200.8	**0.578**		mg/Kg	0.057	0.023	5	08/14/24 12:45	08/08/24	
Mercury	7471B	ND	U	mg/Kg	0.024	0.002	1	08/05/24 10:28	08/02/24	
Nickel	200.8	**9.26**		mg/Kg	0.23	0.03	5	08/14/24 12:45	08/08/24	
Selenium	200.8	ND	U	mg/Kg	1.1	0.1	5	08/14/24 12:45	08/08/24	
Silver	200.8	**0.008**	**J**	mg/Kg	0.023	0.005	5	08/14/24 12:45	08/08/24	
Zinc	200.8	**22.9**		mg/Kg	0.57	0.23	5	08/14/24 12:45	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24 10:00
Sample Matrix:	Soil	**Date Received:**	07/31/24 09:20
Sample Name:	2024 KGMLSH S2	**Basis:**	Dry
Lab Code:	K2407891-014		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**16200**		mg/Kg	2.5	0.7	5	08/14/24 11:44	08/08/24	
Arsenic	200.8	**23.3**		mg/Kg	0.62	0.07	5	08/14/24 11:44	08/08/24	
Cadmium	200.8	**0.172**		mg/Kg	0.025	0.009	5	08/14/24 11:44	08/08/24	
Chromium	200.8	**36.2**		mg/Kg	0.25	0.07	5	08/14/24 11:44	08/08/24	
Copper	200.8	**70.3**		mg/Kg	0.12	0.05	5	08/14/24 11:44	08/08/24	
Lead	200.8	**5.01**		mg/Kg	0.062	0.025	5	08/14/24 11:44	08/08/24	
Mercury	7471B	**0.014**	**J**	mg/Kg	0.028	0.003	1	08/05/24 10:29	08/02/24	
Nickel	200.8	**30.8**		mg/Kg	0.25	0.04	5	08/14/24 11:44	08/08/24	
Selenium	200.8	**0.8**	**J**	mg/Kg	1.2	0.1	5	08/14/24 11:44	08/08/24	
Silver	200.8	**0.109**		mg/Kg	0.025	0.005	5	08/14/24 11:44	08/08/24	
Zinc	200.8	**94.3**		mg/Kg	0.62	0.25	5	08/14/24 11:44	08/08/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411912-05		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**1.4 J**	mg/Kg	2.0	0.6	5	08/14/24 12:06	08/08/24	
Arsenic	200.8	ND U	mg/Kg	0.5	0.06	5	08/14/24 12:06	08/08/24	
Cadmium	200.8	ND U	mg/Kg	0.020	0.007	5	08/14/24 12:06	08/08/24	
Chromium	200.8	ND U	mg/Kg	0.20	0.06	5	08/14/24 12:06	08/08/24	
Copper	200.8	ND U	mg/Kg	0.10	0.04	5	08/14/24 12:06	08/08/24	
Lead	200.8	ND U	mg/Kg	0.05	0.020	5	08/14/24 12:06	08/08/24	
Nickel	200.8	ND U	mg/Kg	0.20	0.03	5	08/14/24 12:06	08/08/24	
Selenium	200.8	ND U	mg/Kg	1.0	0.09	5	08/14/24 12:06	08/08/24	
Silver	200.8	ND U	mg/Kg	0.020	0.004	5	08/14/24 12:06	08/08/24	
Zinc	200.8	ND U	mg/Kg	0.5	0.20	5	08/14/24 12:06	08/08/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411911-03		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7471B	ND U	mg/Kg	0.02	0.002	1	08/05/24 09:50	08/02/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24

Replicate Sample Summary

Total Metals

Sample Name:	2024 KGMUSC S1	**Units:**	mg/Kg
Lab Code:	K2407891-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411912-01 Result	Average	RPD	RPD Limit
Aluminum	200.8	3.0	0.9	17000	17900	17500	5	30
Arsenic	200.8	0.75	0.09	19.9	19.2	19.6	3	30
Cadmium	200.8	0.030	0.011	0.776	0.703	0.740	10	30
Chromium	200.8	0.30	0.09	85.7	120	103	34 *	30
Copper	200.8	0.15	0.06	60.6	64.9	62.8	7	30
Lead	200.8	0.075	0.030	4.37	3.96	4.17	10	30
Nickel	200.8	0.30	0.05	65.1	74.9	70.0	14	30
Selenium	200.8	1.5	0.1	2.3	2.2	2.3	4	30
Silver	200.8	0.030	0.006	0.109	0.107	0.108	2	30
Zinc	200.8	0.75	0.30	130	135	133	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24

Replicate Sample Summary

Total Metals

Sample Name:	2024 KGMLSH S2	**Units:**	mg/Kg
Lab Code:	K2407891-014	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411912-03 Result	Average	RPD	RPD Limit
Aluminum	200.8	2.5	0.8	16200	15900	16100	2	30
Arsenic	200.8	0.63	0.08	23.3	23.2	23.3	<1	30
Cadmium	200.8	0.025	0.009	0.172	0.181	0.177	6	30
Chromium	200.8	0.25	0.08	36.2	37.6	36.9	4	30
Copper	200.8	0.13	0.05	70.3	74.5	72.4	6	30
Lead	200.8	0.063	0.025	5.01	5.85	5.43	16	30
Nickel	200.8	0.25	0.04	30.8	32.0	31.4	4	30
Selenium	200.8	1.3	0.1	0.8 J	0.5 J	0.7	45 #	30
Silver	200.8	0.025	0.005	0.109	0.113	0.111	3	30
Zinc	200.8	0.63	0.25	94.3	87.6	91.0	7	30

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/05/24

Replicate Sample Summary
Total Metals

Sample Name:	2024 KGMUSC S1	**Units:**	mg/Kg
Lab Code:	K2407891-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411911-01 Result	Average	RPD	RPD Limit
Mercury	7471B	0.032	0.003	0.046	0.079	0.063	54 #	20

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24
		Date Extracted:	08/8/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGMUSC S1	**Units:**	mg/Kg
Lab Code:	K2407891-001	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2411912-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	17000	18500	607	247 #	70-130
Arsenic	19.9	180	152	105	70-130
Cadmium	0.776	16.6	15.2	105	70-130
Chromium	85.7	241	60.7	255 N	70-130
Copper	60.6	147	75.9	114	70-130
Lead	4.37	169	152	108	70-130
Nickel	65.1	234	152	111	70-130
Selenium	2.3	155	152	101	70-130
Silver	0.109	15.1	15.2	99	70-130
Zinc	130	304	152	114	70-130

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/22/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/14/24
		Date Extracted:	08/8/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGMLSH S2	**Units:**	mg/Kg
Lab Code:	K2407891-014	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2411912-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	16200	12800	482	-720 #	70-130
Arsenic	23.3	138	121	95	70-130
Cadmium	0.172	12.7	12.1	104	70-130
Chromium	36.2	78.7	48.2	88	70-130
Copper	70.3	102	60.3	53 N	70-130
Lead	5.01	158	121	127	70-130
Nickel	30.8	147	121	97	70-130
Selenium	0.8 J	117	121	97	70-130
Silver	0.109	11.9	12.1	98	70-130
Zinc	94.3	184	121	74	70-130

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Collected:**	07/23/24
Sample Matrix:	Soil	**Date Received:**	07/31/24
		Date Analyzed:	08/5/24
		Date Extracted:	08/2/24

Matrix Spike Summary
Total Metals

Sample Name:	2024 KGMUSC S1	**Units:**	mg/Kg
Lab Code:	K2407891-001	**Basis:**	Dry
Analysis Method:	7471B		
Prep Method:	Method		

Matrix Spike
KQ2411911-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Mercury	0.046	0.699	0.727	90	80-120

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Alaska Department of Fish and Game
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Service Request: K2407891
Date Analyzed: 08/14/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411912-06

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	200.8	420	400	105	85-115
Arsenic	200.8	104	100	104	85-115
Cadmium	200.8	11.0	10.0	110	85-115
Chromium	200.8	42.4	40.0	106	85-115
Copper	200.8	52.6	50.0	105	85-115
Lead	200.8	102	100	102	85-115
Nickel	200.8	107	100	107	85-115
Selenium	200.8	102	100	102	85-115
Silver	200.8	10.7	10.0	107	85-115
Zinc	200.8	104	100	104	85-115

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407891
Project:	Coeur AK Biomonitoring	**Date Analyzed:**	08/05/24
Sample Matrix:	Soil		

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411911-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7471B	0.471	0.500	94	80-120

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Metals

Prep Method: EPA 3050B **Extraction Lot:** 442521
Analytical Method: 200.8 **Extraction Date:** 08/08/24 09:32

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024 KGMUSC S1	K2407891-001	7/23/24	7/31/24	1.114 g	100 mL	
2024 KGMUSC S2	K2407891-002	7/23/24	7/31/24	1.198 g	100 mL	
2024 KGMUSC S3	K2407891-003	7/23/24	7/31/24	1.125 g	100 mL	
2024 KGMUSC SP2 S1	K2407891-004	7/23/24	7/31/24	1.126 g	100 mL	
2024 KGMUSC SP2 S2	K2407891-005	7/23/24	7/31/24	1.151 g	100 mL	
2024 KGMUSC SP2 S3	K2407891-006	7/23/24	7/31/24	1.163 g	100 mL	
2024 KGMLSH S3	K2407891-007	7/22/24	7/31/24	1.107 g	100 mL	
2024 KGMWFSC S1	K2407891-008	7/23/24	7/31/24	1.114 g	100 mL	
2024 KGMWFSC S2	K2407891-009	7/23/24	7/31/24	1.138 g	100 mL	
2024 KGMWFSC S3	K2407891-010	7/23/24	7/31/24	1.241 g	100 mL	
2024 KGM HJC S1	K2407891-011	7/22/24	7/31/24	1.130 g	100 mL	
2024 KGM HJC S2	K2407891-012	7/22/24	7/31/24	1.153 g	100 mL	
2024 KGM HJC S3	K2407891-013	7/22/24	7/31/24	1.190 g	100 mL	
2024 KGMLSH S2	K2407891-014	7/22/24	7/31/24	1.152 g	100 mL	
Duplicate	KQ2411912-01DUP	7/23/24	7/31/24	1.119 g	100 mL	
Matrix Spike	KQ2411912-02MS	7/23/24	7/31/24	1.111 g	100 mL	
Duplicate	KQ2411912-03DUP	7/22/24	7/31/24	1.124 g	100 mL	
Matrix Spike	KQ2411912-04MS	7/22/24	7/31/24	1.183 g	100 mL	
Method Blank	KQ2411912-05MB	NA	NA	1.0000 g	100 mL	
Lab Control Sample	KQ2411912-06LCS	NA	NA	1.0000 g	100 mL	

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring
Sample Matrix: Soil

Metals

Prep Method: Method **Extraction Lot:** 442520
Analytical Method: 7471B **Extraction Date:** 08/02/24 13:00

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024 KGMUSC S1	K2407891-001	7/23/24	7/31/24	0.564 g	50 mL	
2024 KGMUSC S2	K2407891-002	7/23/24	7/31/24	0.581 g	50 mL	
2024 KGMUSC S3	K2407891-003	7/23/24	7/31/24	0.593 g	50 mL	
2024 KGMUSC SP2 S1	K2407891-004	7/23/24	7/31/24	0.554 g	50 mL	
2024 KGMUSC SP2 S2	K2407891-005	7/23/24	7/31/24	0.585 g	50 mL	
2024 KGMUSC SP2 S3	K2407891-006	7/23/24	7/31/24	0.593 g	50 mL	
2024 KGMLSH S3	K2407891-007	7/22/24	7/31/24	0.554 g	50 mL	
2024 KGMWFSC S1	K2407891-008	7/23/24	7/31/24	0.595 g	50 mL	
2024 KGMWFSC S2	K2407891-009	7/23/24	7/31/24	0.541 g	50 mL	
2024 KGMWFSC S3	K2407891-010	7/23/24	7/31/24	0.586 g	50 mL	
2024 KGM HJC S1	K2407891-011	7/22/24	7/31/24	0.598 g	50 mL	
2024 KGM HJC S2	K2407891-012	7/22/24	7/31/24	0.545 g	50 mL	
2024 KGM HJC S3	K2407891-013	7/22/24	7/31/24	0.558 g	50 mL	
2024 KGMLSH S2	K2407891-014	7/22/24	7/31/24	0.516 g	50 mL	
Duplicate	KQ2411911-01DUP	7/23/24	7/31/24	0.526 g	50 mL	
Matrix Spike	KQ2411911-02MS	7/23/24	7/31/24	0.580 g	50 mL	
Method Blank	KQ2411911-03MB	NA	NA	0.5 g	50 mL	
Lab Control Sample	KQ2411911-04LCS	NA	NA	0.5 g	50 mL	

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 08/05/24 09:05						
Mercury	7471B	849608	4.84	5.00	97	90-110
CCV 08/05/24 09:10						
Mercury	7471B	849608	4.99	5.00	100	90-110
CCV 08/05/24 09:31						
Mercury	7471B	849608	4.87	5.00	97	90-110
CCV 08/05/24 09:53						
Mercury	7471B	849608	4.86	5.00	97	90-110
CCV 08/05/24 10:15						
Mercury	7471B	849608	4.90	5.00	98	90-110
CCV 08/05/24 10:36						
Mercury	7471B	849608	4.92	5.00	98	90-110
ICV 08/14/24 08:13						
Aluminum	200.8	850554	106	100	106	90-110
Arsenic	200.8	850554	25.3	25.0	101	90-110
Cadmium	200.8	850554	13.4	12.5	107	90-110
Chromium	200.8	850554	10.2	10.0	102	90-110
Copper	200.8	850554	13.0	12.5	104	90-110
Lead	200.8	850554	25.9	25.0	104	90-110
Nickel	200.8	850554	26.1	25.0	105	90-110
Selenium	200.8	850554	24.7	25.0	99	90-110
Silver	200.8	850554	12.8	12.5	103	90-110
Zinc	200.8	850554	25.9	25.0	104	90-110
CCV 08/14/24 08:15						
Aluminum	200.8	850554	256	250	103	90-110
Arsenic	200.8	850554	24.6	25.0	98	90-110
Cadmium	200.8	850554	25.1	25.0	100	90-110
Chromium	200.8	850554	25.3	25.0	101	90-110
Copper	200.8	850554	25.1	25.0	101	90-110
Lead	200.8	850554	24.5	25.0	98	90-110
Nickel	200.8	850554	25.0	25.0	100	90-110
Selenium	200.8	850554	24.6	25.0	98	90-110
Silver	200.8	850554	12.4	12.5	100	90-110
Zinc	200.8	850554	25.1	25.0	100	90-110
CCV 08/14/24 08:44						
Aluminum	200.8	850554	258	250	103	90-110
Arsenic	200.8	850554	24.6	25.0	99	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/14/24 08:44						
Cadmium	200.8	850554	25.0	25.0	100	90-110
Chromium	200.8	850554	25.3	25.0	101	90-110
Copper	200.8	850554	24.9	25.0	99	90-110
Lead	200.8	850554	24.1	25.0	96	90-110
Nickel	200.8	850554	25.0	25.0	100	90-110
Selenium	200.8	850554	24.6	25.0	98	90-110
Silver	200.8	850554	12.5	12.5	100	90-110
Zinc	200.8	850554	25.1	25.0	100	90-110
CCV 08/14/24 09:15						
Aluminum	200.8	850554	258	250	103	90-110
Arsenic	200.8	850554	24.8	25.0	99	90-110
Cadmium	200.8	850554	24.9	25.0	100	90-110
Chromium	200.8	850554	25.7	25.0	103	90-110
Copper	200.8	850554	25.0	25.0	100	90-110
Lead	200.8	850554	24.0	25.0	96	90-110
Nickel	200.8	850554	24.8	25.0	99	90-110
Selenium	200.8	850554	24.7	25.0	99	90-110
Silver	200.8	850554	12.4	12.5	99	90-110
Zinc	200.8	850554	24.8	25.0	99	90-110
CCV 08/14/24 09:46						
Aluminum	200.8	850554	269	250	107	90-110
Arsenic	200.8	850554	24.9	25.0	99	90-110
Cadmium	200.8	850554	24.9	25.0	100	90-110
Chromium	200.8	850554	25.7	25.0	103	90-110
Copper	200.8	850554	25.2	25.0	101	90-110
Lead	200.8	850554	24.1	25.0	96	90-110
Nickel	200.8	850554	25.4	25.0	102	90-110
Selenium	200.8	850554	24.8	25.0	99	90-110
Silver	200.8	850554	12.4	12.5	100	90-110
Zinc	200.8	850554	25.3	25.0	101	90-110
CCV 08/14/24 10:54						
Aluminum	200.8	850554	254	250	102	90-110
Arsenic	200.8	850554	24.3	25.0	97	90-110
Cadmium	200.8	850554	24.6	25.0	98	90-110
Chromium	200.8	850554	25.0	25.0	100	90-110
Copper	200.8	850554	24.8	25.0	99	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/14/24 10:54						
Lead	200.8	850554	23.3	25.0	93	90-110
Nickel	200.8	850554	24.9	25.0	100	90-110
Selenium	200.8	850554	24.1	25.0	97	90-110
Silver	200.8	850554	12.4	12.5	99	90-110
Zinc	200.8	850554	24.8	25.0	99	90-110
CCV 08/14/24 11:26						
Aluminum	200.8	850554	266	250	106	90-110
Arsenic	200.8	850554	24.9	25.0	100	90-110
Cadmium	200.8	850554	24.4	25.0	98	90-110
Chromium	200.8	850554	25.5	25.0	102	90-110
Copper	200.8	850554	25.0	25.0	100	90-110
Lead	200.8	850554	23.4	25.0	93	90-110
Nickel	200.8	850554	25.2	25.0	101	90-110
Selenium	200.8	850554	24.4	25.0	98	90-110
Silver	200.8	850554	12.2	12.5	98	90-110
Zinc	200.8	850554	25.3	25.0	101	90-110
CCV 08/14/24 11:57						
Aluminum	200.8	850554	268	250	107	90-110
Arsenic	200.8	850554	24.8	25.0	99	90-110
Cadmium	200.8	850554	24.7	25.0	99	90-110
Chromium	200.8	850554	25.2	25.0	101	90-110
Copper	200.8	850554	25.4	25.0	101	90-110
Lead	200.8	850554	23.7	25.0	95	90-110
Nickel	200.8	850554	25.3	25.0	101	90-110
Selenium	200.8	850554	24.5	25.0	98	90-110
Silver	200.8	850554	12.5	12.5	100	90-110
Zinc	200.8	850554	25.1	25.0	101	90-110
CCV 08/14/24 12:40						
Aluminum	200.8	850554	248	250	99	90-110
Arsenic	200.8	850554	24.6	25.0	98	90-110
Cadmium	200.8	850554	24.4	25.0	98	90-110
Chromium	200.8	850554	25.1	25.0	100	90-110
Copper	200.8	850554	24.9	25.0	99	90-110
Lead	200.8	850554	23.6	25.0	95	90-110
Nickel	200.8	850554	25.0	25.0	100	90-110
Selenium	200.8	850554	24.3	25.0	97	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/14/24 12:40						
Silver	200.8	850554	12.3	12.5	99	90-110
Zinc	200.8	850554	25.0	25.0	100	90-110
CCV 08/14/24 12:53						
Aluminum	200.8	850554	248	250	99	90-110
Arsenic	200.8	850554	24.9	25.0	99	90-110
Cadmium	200.8	850554	24.8	25.0	99	90-110
Chromium	200.8	850554	25.1	25.0	100	90-110
Copper	200.8	850554	24.8	25.0	99	90-110
Lead	200.8	850554	23.5	25.0	94	90-110
Nickel	200.8	850554	25.0	25.0	100	90-110
Selenium	200.8	850554	24.5	25.0	98	90-110
Silver	200.8	850554	12.6	12.5	101	90-110
Zinc	200.8	850554	24.7	25.0	99	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
ICB 08/05/24 09:07				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 09:12				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 09:33				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 09:55				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 10:17				
Mercury	7471B	849608	0.02	U
CCB 08/05/24 10:37				
Mercury	7471B	849608	0.02	U
ICB 08/14/24 08:18				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 08:21				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 08:52				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 08/14/24 08:52				
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 09:18				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 10:39				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 10:57				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 08/14/24 10:57				
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 11:28				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 11:59				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U
Silver	200.8	850554	0.008	U
Zinc	200.8	850554	0.4	U
CCB 08/14/24 12:42				
Aluminum	200.8	850554	1.2	U
Arsenic	200.8	850554	0.1	U
Cadmium	200.8	850554	0.014	U
Chromium	200.8	850554	0.12	U
Copper	200.8	850554	0.08	U
Lead	200.8	850554	0.04	U
Nickel	200.8	850554	0.06	U
Selenium	200.8	850554	0.2	U

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	C
CCB 08/14/24 12:42					
	Silver	200.8	850554	0.008	U
	Zinc	200.8	850554	0.4	U
CCB 08/14/24 12:55					
	Aluminum	200.8	850554	1.2	U
	Arsenic	200.8	850554	0.1	U
	Cadmium	200.8	850554	0.014	U
	Chromium	200.8	850554	0.12	U
	Copper	200.8	850554	0.08	U
	Lead	200.8	850554	0.04	U
	Nickel	200.8	850554	0.06	U
	Selenium	200.8	850554	0.2	U
	Silver	200.8	850554	0.008	U
	Zinc	200.8	850554	0.4	U

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV							
Mercury	7471B	849608	0.20	0.2	98	50-150	08/05/24 09:08
LLICVS							
Aluminum	200.8	850554	4.6	4.0	114	50-199	08/14/24 08:23
Arsenic	200.8	850554	0.48	0.5	96	50-199	08/14/24 08:23
Cadmium	200.8	850554	0.045	0.04	112	50-199	08/14/24 08:23
Chromium	200.8	850554	0.43	0.4	107	50-199	08/14/24 08:23
Copper	200.8	850554	0.21	0.2	106	50-199	08/14/24 08:23
Lead	200.8	850554	0.10	0.1	101	50-199	08/14/24 08:23
Nickel	200.8	850554	0.44	0.4	110	50-199	08/14/24 08:23
Selenium	200.8	850554	0.99	1.0	99	50-199	08/14/24 08:23
Silver	200.8	850554	0.043	0.04	107	50-199	08/14/24 08:23
Zinc	200.8	850554	1.1	1.0	114	50-199	08/14/24 08:23

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring

POST SPIKE SAMPLE RECOVERY

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2407891-001A								
Mercury	7471B	849608	0.31	5.18	5.00	97	80-120	08/05/24 10:04

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

Detection Limits

Instrument: K-CVAA-04 **Matrix:** Soil

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Mercury	253	ug/L	0.2	0.02	7471B

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

Detection Limits

Instrument: K-ICP-MS-05 **Matrix:** Soil

Analyte	Mass	Units	MRL	MDL	Method
Aluminum	27	ug/L	4	1.2	200.8
Arsenic	75	ug/L	1	0.12	200.8
Cadmium	111	ug/L	0.04	0.014	200.8
Chromium	52	ug/L	0.4	0.12	200.8
Copper	65	ug/L	0.2	0.08	200.8
Lead	208	ug/L	0.1	0.04	200.8
Nickel	60	ug/L	0.4	0.06	200.8
Selenium	78	ug/L	2	0.18	200.8
Silver	107	ug/L	0.04	0.008	200.8
Zinc	66	ug/L	1	0.4	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-05

Analyte	Concentration (ug/L)	Method
Aluminum 27	45000	200.8
Arsenic 75	3600	200.8
Cadmium 111	3600	200.8
Chromium 52	3600	200.8
Copper 65	3600	200.8
Lead 208	3600	200.8
Nickel 60	3600	200.8
Selenium 78	3600	200.8
Silver 107	180	200.8
Zinc 66	3600	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **849608**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	08/05/24 08:55	
ZZZZZZ	1	08/05/24 08:57	
ZZZZZZ	1	08/05/24 08:59	
ZZZZZZ	1	08/05/24 09:00	
ZZZZZZ	1	08/05/24 09:02	
ZZZZZZ	1	08/05/24 09:04	
ICV1	1	08/05/24 09:05	X
ICB1	1	08/05/24 09:07	X
LLICV1	1	08/05/24 09:08	X
CCV1	1	08/05/24 09:10	X
CCB1	1	08/05/24 09:12	X
ZZZZZZ	1	08/05/24 09:14	
ZZZZZZ	1	08/05/24 09:15	
ZZZZZZ	1	08/05/24 09:17	
ZZZZZZ	1	08/05/24 09:19	
ZZZZZZ	1	08/05/24 09:20	
ZZZZZZ	1	08/05/24 09:23	
ZZZZZZ	1	08/05/24 09:24	
ZZZZZZ	1	08/05/24 09:26	
ZZZZZZ	1	08/05/24 09:28	
ZZZZZZ	1	08/05/24 09:29	
CCV2	1	08/05/24 09:31	X
CCB2	1	08/05/24 09:33	X
ZZZZZZ	1	08/05/24 09:37	
ZZZZZZ	1	08/05/24 09:39	
ZZZZZZ	1	08/05/24 09:40	
ZZZZZZ	1	08/05/24 09:42	
ZZZZZZ	1	08/05/24 09:44	
ZZZZZZ	1	08/05/24 09:45	
ZZZZZZ	1	08/05/24 09:47	
ZZZZZZ	1	08/05/24 09:48	
KQ2411911-03MB	1	08/05/24 09:50	X
KQ2411911-04LCS	1	08/05/24 09:52	X
CCV3	1	08/05/24 09:53	X
CCB3	1	08/05/24 09:55	X
K2407891-001	1	08/05/24 09:57	X
K2407891-001DUP	1	08/05/24 09:58	X

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **849608**

Sample	Dilution Factor	Date/Time	Hg
K2407891-001MS	1	08/05/24 10:00	X
K2407891-001PS	1	08/05/24 10:04	X
K2407891-002	1	08/05/24 10:05	X
K2407891-003	1	08/05/24 10:07	X
K2407891-004	1	08/05/24 10:09	X
K2407891-005	1	08/05/24 10:10	X
K2407891-006	1	08/05/24 10:12	X
K2407891-007	1	08/05/24 10:13	X
CCV4	1	08/05/24 10:15	X
CCB4	1	08/05/24 10:17	X
K2407891-008	1	08/05/24 10:18	X
K2407891-009	1	08/05/24 10:20	X
K2407891-010	1	08/05/24 10:22	X
K2407891-011	1	08/05/24 10:23	X
K2407891-012	1	08/05/24 10:25	X
K2407891-013	1	08/05/24 10:28	X
K2407891-014	1	08/05/24 10:29	X
ZZZZZZ	1	08/05/24 10:31	
ZZZZZZ	1	08/05/24 10:32	
ZZZZZZ	1	08/05/24 10:34	
CCV5	1	08/05/24 10:36	X
CCB5	1	08/05/24 10:37	X
ZZZZZZ	1	08/05/24 10:39	
ZZZZZZ	1	08/05/24 10:41	
ZZZZZZ	1	08/05/24 10:42	
ZZZZZZ	1	08/05/24 10:44	
ZZZZZZ	1	08/05/24 10:45	
ZZZZZZ	1	08/05/24 10:47	
ZZZZZZ	1	08/05/24 10:49	
ZZZZZZ	1	08/05/24 10:50	
ZZZZZZ	1	08/05/24 10:52	
ZZZZZZ	1	08/05/24 10:54	
ZZZZZZ	1	08/05/24 10:55	
ZZZZZZ	1	08/05/24 10:57	
ZZZZZZ	1	08/05/24 10:58	
ZZZZZZ	1	08/05/24 11:00	
ZZZZZZ	1	08/05/24 11:02	

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Ni	Se	Ag	Zn
ZZZZZZ	1	08/14/24 08:06										
ZZZZZZ	1	08/14/24 08:08										
ICV	1	08/14/24 08:13	X	X	X	X	X	X	X	X	X	X
CCV	1	08/14/24 08:15	X	X	X	X	X	X	X	X	X	X
ICB	1	08/14/24 08:18	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 08:21	X	X	X	X	X	X	X	X	X	X
LLICVS	1	08/14/24 08:23	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	08/14/24 08:26										
ZZZZZZ	5	08/14/24 08:30										
ZZZZZZ	20	08/14/24 08:33										
ZZZZZZ	5	08/14/24 08:35										
ZZZZZZ	5	08/14/24 08:38										
ZZZZZZ	5	08/14/24 08:40										
CCV	1	08/14/24 08:44	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 08:52	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 08:54										
ZZZZZZ	20	08/14/24 08:57										
ZZZZZZ	5	08/14/24 08:59										
ZZZZZZ	5	08/14/24 09:02										
ZZZZZZ	5	08/14/24 09:04										
ZZZZZZ	5	08/14/24 09:07										
ZZZZZZ	5	08/14/24 09:10										
CCV	1	08/14/24 09:15	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 09:18	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 09:20										
ZZZZZZ	20	08/14/24 09:23										
ZZZZZZ	5	08/14/24 09:25										
ZZZZZZ	5	08/14/24 09:28										
ZZZZZZ	5	08/14/24 09:31										
ZZZZZZ	5	08/14/24 09:33										
ZZZZZZ	5	08/14/24 09:36										
ZZZZZZ	5	08/14/24 09:38										
ZZZZZZ	5	08/14/24 09:41										
ZZZZZZ	5	08/14/24 09:43										
CCV	1	08/14/24 09:46	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	08/14/24 09:48										
ZZZZZZ	1	08/14/24 10:35										

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Ni	Se	Ag	Zn
CCB	1	08/14/24 10:39	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 10:42										
ZZZZZZ	20	08/14/24 10:44										
ZZZZZZ	5	08/14/24 10:47										
ZZZZZZ	5	08/14/24 10:49										
CCV	1	08/14/24 10:54	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 10:57	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 11:00										
ZZZZZZ	5	08/14/24 11:02										
ZZZZZZ	5	08/14/24 11:05										
ZZZZZZ	5	08/14/24 11:08										
ZZZZZZ	5	08/14/24 11:10										
ZZZZZZ	5	08/14/24 11:13										
ZZZZZZ	5	08/14/24 11:15										
ZZZZZZ	5	08/14/24 11:18										
ZZZZZZ	5	08/14/24 11:20										
ZZZZZZ	5	08/14/24 11:23										
CCV	1	08/14/24 11:26	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 11:28	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	5	08/14/24 11:31										
KQ2411912-06LCS	20	08/14/24 11:33	X	X	X	X	X	X	X	X	X	X
K2407891-001	5	08/14/24 11:36	X	X	X	X	X	X	X	X	X	X
K2407891-001DUP	5	08/14/24 11:38	X	X	X	X	X	X	X	X	X	X
K2407891-001MS	5	08/14/24 11:41	X	X	X	X	X	X	X	X	X	X
K2407891-014	5	08/14/24 11:44	X	X	X	X	X	X	X	X	X	X
K2407891-014DUP	5	08/14/24 11:46	X	X	X	X	X	X	X	X	X	X
K2407891-014MS	5	08/14/24 11:49	X	X	X	X	X	X	X	X	X	X
K2407891-002	5	08/14/24 11:51	X	X	X	X	X	X	X	X	X	X
K2407891-003	5	08/14/24 11:54	X	X	X	X	X	X	X	X	X	X
CCV	1	08/14/24 11:57	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 11:59	X	X	X	X	X	X	X	X	X	X
KQ2411912-05MB	5	08/14/24 12:06	X	X	X	X	X	X	X	X	X	X
K2407891-004	5	08/14/24 12:09	X	X	X	X	X	X	X	X	X	X
K2407891-005	5	08/14/24 12:11	X	X	X	X	X	X	X	X	X	X
K2407891-006	5	08/14/24 12:14	X	X	X	X	X	X	X	X	X	X
K2407891-007	5	08/14/24 12:17	X	X	X	X	X	X	X	X	X	X
K2407891-008	5	08/14/24 12:19	X	X	X	X	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Ni	Se	Ag	Zn
K2407891-009	5	08/14/24 12:22	X	X	X	X	X	X	X	X	X	X
K2407891-010	5	08/14/24 12:24	X	X	X	X	X	X	X	X	X	X
K2407891-011	5	08/14/24 12:27	X	X	X	X	X	X	X	X	X	X
K2407891-012	5	08/14/24 12:29	X	X	X	X	X	X	X	X	X	X
CCV	1	08/14/24 12:40	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 12:42	X	X	X	X	X	X	X	X	X	X
K2407891-013	5	08/14/24 12:45	X	X	X	X	X	X	X	X	X	X
CCV	1	08/14/24 12:53	X	X	X	X	X	X	X	X	X	X
CCB	1	08/14/24 12:55	X	X	X	X	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Date/Time	Sc45NG	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	08/14/24 08:06					
ZZZZZZ	08/14/24 08:08					
ICV	08/14/24 08:13	98	100	99	101	98
CCV	08/14/24 08:15	99	103	102	103	102
ICB	08/14/24 08:18	97	100	98	99	99
CCB	08/14/24 08:21	98	73	87	87	88
LLICVS	08/14/24 08:23	97	101	97	100	98
ZZZZZZ	08/14/24 08:26					
ZZZZZZ	08/14/24 08:30					
ZZZZZZ	08/14/24 08:33					
ZZZZZZ	08/14/24 08:35					
ZZZZZZ	08/14/24 08:38					
ZZZZZZ	08/14/24 08:40					
CCV	08/14/24 08:44	90	99	98	97	94
CCB	08/14/24 08:52	95	99	98	97	94
ZZZZZZ	08/14/24 08:54					
ZZZZZZ	08/14/24 08:57					
ZZZZZZ	08/14/24 08:59					
ZZZZZZ	08/14/24 09:02					
ZZZZZZ	08/14/24 09:04					
ZZZZZZ	08/14/24 09:07					
ZZZZZZ	08/14/24 09:10					
CCV	08/14/24 09:15	95	100	98	98	95
CCB	08/14/24 09:18	96	100	97	97	94
ZZZZZZ	08/14/24 09:20					
ZZZZZZ	08/14/24 09:23					
ZZZZZZ	08/14/24 09:25					
ZZZZZZ	08/14/24 09:28					
ZZZZZZ	08/14/24 09:31					
ZZZZZZ	08/14/24 09:33					
ZZZZZZ	08/14/24 09:36					
ZZZZZZ	08/14/24 09:38					
ZZZZZZ	08/14/24 09:41					
ZZZZZZ	08/14/24 09:43					
CCV	08/14/24 09:46	98	97	94	95	93
ZZZZZZ	08/14/24 09:48					
ZZZZZZ	08/14/24 10:35					

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Date/Time	Sc45NG	Ge72H2	Ge72He	In115He	Lu175He
CCB	08/14/24 10:39	100	103	100	100	97
ZZZZZZ	08/14/24 10:42					
ZZZZZZ	08/14/24 10:44					
ZZZZZZ	08/14/24 10:47					
ZZZZZZ	08/14/24 10:49					
CCV	08/14/24 10:54	100	88	90	89	88
CCB	08/14/24 10:57	96	100	96	96	96
ZZZZZZ	08/14/24 11:00					
ZZZZZZ	08/14/24 11:02					
ZZZZZZ	08/14/24 11:05					
ZZZZZZ	08/14/24 11:08					
ZZZZZZ	08/14/24 11:10					
ZZZZZZ	08/14/24 11:13					
ZZZZZZ	08/14/24 11:15					
ZZZZZZ	08/14/24 11:18					
ZZZZZZ	08/14/24 11:20					
ZZZZZZ	08/14/24 11:23					
CCV	08/14/24 11:26	101	100	98	99	97
CCB	08/14/24 11:28	97	97	95	97	93
ZZZZZZ	08/14/24 11:31					
KQ2411912-06LCS	08/14/24 11:33	94	88	94	95	96
K2407891-001	08/14/24 11:36	100	85	95	100	100
K2407891-001DUP	08/14/24 11:38	100	81	93	98	99
K2407891-001MS	08/14/24 11:41	98	82	90	95	96
K2407891-014	08/14/24 11:44	97	83	93	98	98
K2407891-014DUP	08/14/24 11:46	98	84	94	97	100
K2407891-014MS	08/14/24 11:49	98	86	93	96	99
K2407891-002	08/14/24 11:51	98	83	93	96	98
K2407891-003	08/14/24 11:54	99	83	93	96	98
CCV	08/14/24 11:57	92	86	94	97	99
CCB	08/14/24 11:59	89	86	94	96	98
KQ2411912-05MB	08/14/24 12:06	66	89	94	98	98
K2407891-004	08/14/24 12:09	103	87	96	99	99
K2407891-005	08/14/24 12:11	105	86	94	98	100
K2407891-006	08/14/24 12:14	103	84	94	96	100
K2407891-007	08/14/24 12:17	105	83	95	98	99
K2407891-008	08/14/24 12:19	103	83	96	99	99

Client: Alaska Department of Fish and Game **Service Request:** K2407891
Project: Coeur AK Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **850554**

Sample	Date/Time	Sc45NG	Ge72H2	Ge72He	In115He	Lu175He
K2407891-009	08/14/24 12:22	104	84	96	98	99
K2407891-010	08/14/24 12:24	103	85	95	98	99
K2407891-011	08/14/24 12:27	100	87	96	101	101
K2407891-012	08/14/24 12:29	103	84	95	99	101
CCV	08/14/24 12:40	100	92	96	98	98
CCB	08/14/24 12:42	97	91	95	96	98
K2407891-013	08/14/24 12:45	98	88	97	101	101
CCV	08/14/24 12:53	97	91	95	95	98
CCB	08/14/24 12:55	95	89	93	96	97

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Results Summary

Instrument Name: K-Balance-61 **Analyst:** ZBIBI **Analysis Lot:** 849328 **Method/Testcode:** 160.3 Modified/TS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407891-001	Solids, Total	N/A		Soil	59.30 Percent	10 g	59.3 Percent	1					8/1/24 12:20:00	N	IV
K2407891-002	Solids, Total	N/A		Soil	63.60 Percent	10 g	63.6 Percent	1					8/1/24 12:20:00	N	IV
K2407891-003	Solids, Total	N/A		Soil	64.80 Percent	10 g	64.8 Percent	1					8/1/24 12:20:00	N	IV
K2407891-004	Solids, Total	N/A		Soil	65.60 Percent	10 g	65.6 Percent	1					8/1/24 12:20:00	N	IV
K2407891-005	Solids, Total	N/A		Soil	74.00 Percent	10 g	74.0 Percent	1					8/1/24 12:20:00	N	IV
K2407891-006	Solids, Total	N/A		Soil	75.50 Percent	10 g	75.5 Percent	1					8/1/24 12:20:00	N	IV
K2407891-007	Solids, Total	N/A		Soil	67.90 Percent	10 g	67.9 Percent	1					8/1/24 12:20:00	N	IV
K2407891-008	Solids, Total	N/A		Soil	61.20 Percent	10 g	61.2 Percent	1					8/1/24 12:20:00	N	IV
K2407891-009	Solids, Total	N/A		Soil	64.00 Percent	10 g	64.0 Percent	1					8/1/24 12:20:00	N	IV
K2407891-010	Solids, Total	N/A		Soil	57.80 Percent	10 g	57.8 Percent	1					8/1/24 12:20:00	N	IV
K2407891-011	Solids, Total	N/A		Soil	76.40 Percent	10 g	76.4 Percent	1					8/1/24 12:20:00	N	IV
K2407891-012	Solids, Total	N/A		Soil	74.40 Percent	10 g	74.4 Percent	1					8/1/24 12:20:00	N	IV
K2407891-013	Solids, Total	N/A		Soil	73.30 Percent	10 g	73.3 Percent	1					8/1/24 12:20:00	N	IV
K2407891-014	Solids, Total	N/A		Soil	70.10 Percent	10 g	70.1 Percent	1					8/1/24 12:20:00	N	IV
KQ2411888-01	Solids, Total	DUP	K2407891-001	Soil	57.20 Percent	10 g	57.2 Percent	1				4	8/1/24 12:20:00	N	IV
KQ2411888-02	Solids, Total	DUP	K2407891-014	Soil	69.40 Percent	10 g	69.4 Percent	1				1	8/1/24 12:20:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix:

Sample Number		MB	7891-1	7891-1dup	7891-2	7891-3	7891-4
Crucible Number		flower	Game	Sally	Soil	Sky	ISM
SampleWeight		50.0680	25.6279	25.6383	26.1784	27.1619	25.4839
Tare Weight	8/1/2024	61.1792	48.1767	50.8680	51.0358	50.2933	52.0610
Tare + Dry Wt. (1)	8/2/2024	61.1641	63.3662	65.5295	67.6716	67.8802	68.7606
Tare + Dry Wt. (2)	8/2/2024	61.1753	63.3807	65.5453	67.6837	67.8908	68.7738
Tare + Ash Wt. (1)	8/2/2024	61.1592	62.8864	65.0028	67.2215	67.5433	68.4825
Tare + Ash Wt. (2)	8/2/2024	61.1477	62.5870	64.8023	66.8744	67.2762	68.1831
Total Solids		0.0%	59.3%	57.2%	63.6%	64.8%	65.6%
Volatile Solids		-707.7%	5.2%	5.1%	4.9%	3.5%	3.5%

Sample Number		7891-5	7891-6	7891-7	7891-8	7891-9	7891-10
Crucible Number		Ralph	Cube	Diane	Jon	Gen	S
Sample Weight		25.0795	25.3592	27.5407	26.1393	25.6082	25.4077
Tare Weight	8/1/2024	51.9683	47.3815	50.2460	52.2839	51.7125	48.7934
Tare + Dry Wt. (1)	8/2/2024	70.5208	66.5105	68.9406	68.2654	68.0849	63.4736
Tare + Dry Wt. (2)	8/2/2024	70.5267	66.5191	68.9483	68.2764	68.0951	63.4827
Tare + Ash Wt. (1)	8/2/2024	70.3150	66.3894	68.5261	67.5100	67.7443	62.9898
Tare + Ash Wt. (2)	8/2/2024	70.1212	66.2205	68.3878	67.2279	67.4408	62.7102
Total Solids		74.0%	75.5%	67.9%	61.2%	64.0%	57.8%
Volatile Solids		2.2%	1.6%	3.0%	6.6%	4.0%	5.3%

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	8/2/2024
Reviewed By:		Date:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix:

Sample Number		7891-11	7891-12	7891-13	7891-14	7891-14dup	
Crucible Number		Groot	Olc	Lop	Stack	Trick	
SampleWeight		26.3335	27.3560	28.6312	28.2259	28.2119	
Tare Weight	8/1/2024	47.1252	51.3675	49.9450	49.8120	51.5755	
Tare + Dry Wt. (1)	8/2/2024	67.2499	71.7074	70.9355	69.5910	71.1581	
Tare + Dry Wt. (2)	8/2/2024	67.2547	71.7139	70.9418	69.5952	71.1643	
Tare + Ash Wt. (1)	8/2/2024	67.1335	71.4463	70.7310	69.1833	70.7587	
Tare + Ash Wt. (2)	8/2/2024	67.0837	71.4201	70.4552	69.0012	70.5554	
Total Solids		76.4%	74.4%	73.3%	70.1%	69.4%	#DIV/0!
Volatile Solids		0.8%	1.4%	2.3%	3.0%	3.1%	#DIV/0!

Sample Number							
Crucible Number							
Sample Weight							
Tare Weight	Date						
Tare + Dry Wt. (1)							
Tare + Dry Wt. (2)							
Tare + Ash Wt. (1)							
Tare + Ash Wt. (2)							
Total Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Volatile Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	8/2/2024
Reviewed By:		Date:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	12.20.00	8/1/2024	09.00.00	8/2/2024
105	09.30.00	8/2/2024	10.30.00	8/2/2024
550	11.15.00	8/2/2024	12.30.00	8/2/2024
550	13.00.00	8/2/2024	14.10.00	8/2/2024

Analyzed By:	ZZB	Date Analyzed:	8/2/2024
Reviewed By:		Date Reviewed:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	200.0007	100.0%	CCV1	9.9997	100.0%	8/1/2024
CCV2	200.0008	100.0%	CCV2	9.9997	100.0%	8/1/2024
CCV3	199.9999	100.0%	CCV3	9.9997	100.0%	8/2/2024
CCV4	199.9999	100.0%	CCV4	9.9999	100.0%	8/2/2024
CCV5	199.9998	100.0%	CCV5	9.9998	100.0%	8/2/2024
CCV6	199.9998	100.0%	CCV6	9.9998	100.0%	8/2/2024
CCV7	200.0000	100.0%	CCV7	9.9999	100.0%	8/2/2024
CCV8	200.0000	100.0%	CCV8	9.9999	100.0%	8/2/2024
CCV9	199.9999	100.0%	CCV9	9.9997	100.0%	8/2/2024
CCV10	199.9999	100.0%	CCV10	9.9997	100.0%	8/2/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	ZZB	Date Analyzed:	8/2/2024
Reviewed By:		Date Reviewed:	8/5/24

Analytical Results Summary

Instrument Name: K-Balance-61 **Analyst:** ZBIBI **Analysis Lot:** 849326 **Method/Testcode:** 160.4 Modified/TVS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407891-001	Solids, Total Volatile	N/A		Soil	5.20 Percent	10 g	5.20 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-002	Solids, Total Volatile	N/A		Soil	4.90 Percent	10 g	4.90 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-003	Solids, Total Volatile	N/A		Soil	3.50 Percent	10 g	3.50 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-004	Solids, Total Volatile	N/A		Soil	3.50 Percent	10 g	3.50 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-005	Solids, Total Volatile	N/A		Soil	2.20 Percent	10 g	2.20 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-006	Solids, Total Volatile	N/A		Soil	1.60 Percent	10 g	1.60 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-007	Solids, Total Volatile	N/A		Soil	3.00 Percent	10 g	3.00 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-008	Solids, Total Volatile	N/A		Soil	6.60 Percent	10 g	6.60 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-009	Solids, Total Volatile	N/A		Soil	4.00 Percent	10 g	4.00 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-010	Solids, Total Volatile	N/A		Soil	5.30 Percent	10 g	5.30 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-011	Solids, Total Volatile	N/A		Soil	0.80 Percent	10 g	0.80 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-012	Solids, Total Volatile	N/A		Soil	1.40 Percent	10 g	1.40 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-013	Solids, Total Volatile	N/A		Soil	2.30 Percent	10 g	2.30 Percent	1		0.10			8/1/24 12:20:00	N	IV
K2407891-014	Solids, Total Volatile	N/A		Soil	3.00 Percent	10 g	3.00 Percent	1		0.10			8/1/24 12:20:00	N	IV
KQ2411887-01	Solids, Total Volatile	DUP	K2407891-001	Soil	5.10 Percent	10 g	5.10 Percent	1		0.10		2	8/1/24 12:20:00	N	IV
KQ2411887-02	Solids, Total Volatile	MB		Soil	0.00 Percent	10 g	0.10 Percent U	1		0.10			8/1/24 12:20:00	N	IV
KQ2411887-03	Solids, Total Volatile	DUP	K2407891-014	Soil	3.10 Percent	10 g	3.10 Percent	1		0.10		3	8/1/24 12:20:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix:

Sample Number		MB	7891-1	7891-1dup	7891-2	7891-3	7891-4
Crucible Number		flower	Game	Sally	Soil	Sky	ISM
SampleWeight		50.0680	25.6279	25.6383	26.1784	27.1619	25.4839
Tare Weight	8/1/2024	61.1792	48.1767	50.8680	51.0358	50.2933	52.0610
Tare + Dry Wt. (1)	8/2/2024	61.1641	63.3662	65.5295	67.6716	67.8802	68.7606
Tare + Dry Wt. (2)	8/2/2024	61.1753	63.3807	65.5453	67.6837	67.8908	68.7738
Tare + Ash Wt. (1)	8/2/2024	61.1592	62.8864	65.0028	67.2215	67.5433	68.4825
Tare + Ash Wt. (2)	8/2/2024	61.1477	62.5870	64.8023	66.8744	67.2762	68.1831
Total Solids		0.0%	59.3%	57.2%	63.6%	64.8%	65.6%
Volatile Solids		-707.7%	5.2%	5.1%	4.9%	3.5%	3.5%

Sample Number		7891-5	7891-6	7891-7	7891-8	7891-9	7891-10
Crucible Number		Ralph	Cube	Diane	Jon	Gen	S
Sample Weight		25.0795	25.3592	27.5407	26.1393	25.6082	25.4077
Tare Weight	8/1/2024	51.9683	47.3815	50.2460	52.2839	51.7125	48.7934
Tare + Dry Wt. (1)	8/2/2024	70.5208	66.5105	68.9406	68.2654	68.0849	63.4736
Tare + Dry Wt. (2)	8/2/2024	70.5267	66.5191	68.9483	68.2764	68.0951	63.4827
Tare + Ash Wt. (1)	8/2/2024	70.3150	66.3894	68.5261	67.5100	67.7443	62.9898
Tare + Ash Wt. (2)	8/2/2024	70.1212	66.2205	68.3878	67.2279	67.4408	62.7102
Total Solids		74.0%	75.5%	67.9%	61.2%	64.0%	57.8%
Volatile Solids		2.2%	1.6%	3.0%	6.6%	4.0%	5.3%

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	8/2/2024
Reviewed By:		Date:	8/5/24

Reviewed by JA 02/07/2024

k2407891 160.4 TVS ZZB 8-1-2024

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix:

Sample Number		7891-11	7891-12	7891-13	7891-14	7891-14dup	
Crucible Number		Groot	Olc	Lop	Stack	Trick	
SampleWeight		26.3335	27.3560	28.6312	28.2259	28.2119	
Tare Weight	8/1/2024	47.1252	51.3675	49.9450	49.8120	51.5755	
Tare + Dry Wt. (1)	8/2/2024	67.2499	71.7074	70.9355	69.5910	71.1581	
Tare + Dry Wt. (2)	8/2/2024	67.2547	71.7139	70.9418	69.5952	71.1643	
Tare + Ash Wt. (1)	8/2/2024	67.1335	71.4463	70.7310	69.1833	70.7587	
Tare + Ash Wt. (2)	8/2/2024	67.0837	71.4201	70.4552	69.0012	70.5554	
Total Solids		76.4%	74.4%	73.3%	70.1%	69.4%	#DIV/0!
Volatile Solids		0.8%	1.4%	2.3%	3.0%	3.1%	#DIV/0!

Sample Number							
Crucible Number							
Sample Weight							
Tare Weight	Date						
Tare + Dry Wt. (1)							
Tare + Dry Wt. (2)							
Tare + Ash Wt. (1)							
Tare + Ash Wt. (2)							
Total Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Volatile Solids		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	8/2/2024
Reviewed By:		Date:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	12.20.00	8/1/2024	09.00.00	8/2/2024
105	09.30.00	8/2/2024	10.30.00	8/2/2024
550	11.15.00	8/2/2024	12.30.00	8/2/2024
550	13.00.00	8/2/2024	14.10.00	8/2/2024

Analyzed By:	ZZB	Date Analyzed:	8/2/2024
Reviewed By:		Date Reviewed:	8/5/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: k2407891 Method: TS/160.4 TVS

Run: 849326/ 849328

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	200.0007	100.0%	CCV1	9.9997	100.0%	8/1/2024
CCV2	200.0008	100.0%	CCV2	9.9997	100.0%	8/1/2024
CCV3	199.9999	100.0%	CCV3	9.9997	100.0%	8/2/2024
CCV4	199.9999	100.0%	CCV4	9.9999	100.0%	8/2/2024
CCV5	199.9998	100.0%	CCV5	9.9998	100.0%	8/2/2024
CCV6	199.9998	100.0%	CCV6	9.9998	100.0%	8/2/2024
CCV7	200.0000	100.0%	CCV7	9.9999	100.0%	8/2/2024
CCV8	200.0000	100.0%	CCV8	9.9999	100.0%	8/2/2024
CCV9	199.9999	100.0%	CCV9	9.9997	100.0%	8/2/2024
CCV10	199.9999	100.0%	CCV10	9.9997	100.0%	8/2/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	ZZB	Date Analyzed:	8/2/2024
Reviewed By:		Date Reviewed:	8/5/24

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Work Request # K2407891

Date Analyzed: 9/3/24

Analyst: ZH KK

Run # 853246

Analysis: ASTM D422M EB

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA ZH 9/13/24
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the bench sheet crossed out?	yes/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	yes/no/NA 7491

COMMENTS:

Outlier in duplicate. There is a big rock on the top sieve throwing off RPD and potentially total solids.

Secondary Approved by: _____ Date: 09/13/24

DQREPORT

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-001

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMUSC S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.0797	0.1344
Gravel 2.00 mm (g)	10	0.9013	1.5199
Gravel 0.850 mm (g)	20	2.8997	4.8899
Gravel 0.425 mm (g)	40	8.4204	14.1997
Gravel 0.250 mm (g)	60	7.7817	13.1226
Gravel 0.106 mm (g)	140	5.6207	9.4784
Gravel 0.075 mm (g)	200	0.8520	1.4368
S/C <0.075 mm (g)	Pan	0.4503	0.7594

Sieve Stack:

Total (g) Recov'd	27.0058
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	137.3712
Grams Beaker (Tare)	110.3303
GramsGravel/Sand	27.0409

I. Sample Preparation

Grams As Received Sample	40.3494
Percent (%) Solids	59.3
Grams Oven Dried Sample	23.9272

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.7831	29.2779	42.5512	29.2241	29.3546	28.5188	30.9810
Grams of Tare	27.7595	29.2686	42.5458	29.2206	29.3519	28.5167	30.9790
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0216	0.0073	0.0034	0.0015	0.0007	0.0001	0.0000
Total Grams Sample X 50	0.7150	0.1950	0.0950	0.0400	0.0300	0.0050	0.0000

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-B

Analyst: ZH KK Date: 9/3/2024

Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-002

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMUSC S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	2.1697	3.4115
Gravel 2.00 mm (g)	10	3.1132	4.8950
Gravel 0.850 mm (g)	20	11.8360	18.6101
Gravel 0.425 mm (g)	40	15.6803	24.6546
Gravel 0.250 mm (g)	60	4.1003	6.4470
Gravel 0.106 mm (g)	140	1.3584	2.1358
Gravel 0.075 mm (g)	200	0.1213	0.1907
S/C <0.075 mm (g)	Pan	0.0895	0.1407

Sieve Stack:

Total (g) Recov'd	38.4687
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	158.8236
Grams Beaker (Tare)	120.2916
GramsGravel/Sand	38.5320

I. Sample Preparation

Grams As Received Sample	55.4601
Percent (%) Solids	63.6
Grams Oven Dried Sample	35.2726

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	30.2864	28.4317	28.0492	31.3570	31.0076	29.2769	29.2474
Grams of Tare	30.2796	28.4269	28.0464	31.3547	31.0054	29.2748	29.2454
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0048	0.0028	0.0008	0.0003	0.0002	0.0001	0.0000
Total Grams Sample X 50	0.1000	0.1000	0.0250	0.0050	0.0050	0.0050	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Wa 98626

Service Request #: K2407891
Sample #: K2407891-003

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMUSC S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	2.6693	4.1193
Gravel 2.00 mm (g)	10	3.6593	5.6471
Gravel 0.850 mm (g)	20	10.7393	16.5730
Gravel 0.425 mm (g)	40	8.2422	12.7194
Gravel 0.250 mm (g)	60	2.4663	3.8060
Gravel 0.106 mm (g)	140	0.6831	1.0542
Gravel 0.075 mm (g)	200	0.0665	0.1026
S/C <0.075 mm (g)	Pan	0.0716	0.1105

Sieve Stack:

Total (g) Recov'd	28.5976
Total (%) Recov'd	85

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	154.0634
Grams Beaker (Tare)	120.2927
GramsGravel/Sand	33.7707

I. Sample Preparation

Grams As Received Sample	42.5910
Percent (%) Solids	64.8
Grams Oven Dried Sample	27.5990

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	33.4128	41.5168	33.1511	27.5993	27.6627	40.8797	29.6434
Grams of Tare	33.4098	41.5148	33.1491	27.5973	27.6607	40.8777	29.6414
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.0500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-004

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMUSC SP2 S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	8.9259	13.6066
Gravel 2.00 mm (g)	10	6.5781	10.0276
Gravel 0.850 mm (g)	20	3.4674	5.2857
Gravel 0.425 mm (g)	40	2.2845	3.4825
Gravel 0.250 mm (g)	60	1.6185	2.4672
Gravel 0.106 mm (g)	140	1.7789	2.7117
Gravel 0.075 mm (g)	200	0.2394	0.3649
S/C <0.075 mm (g)	Pan	0.0932	0.1421

Sieve Stack:

Total (g) Recov'd	24.9859
Total (%) Recov'd	99

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	148.2232
Grams Beaker (Tare)	123.0402
GramsGravel/Sand	25.1830

I. Sample Preparation

Grams As Received Sample	36.1510
Percent (%) Solids	65.6
Grams Oven Dried Sample	23.7151

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.7256	28.2238	41.7657	41.1024	30.7566	27.2343	30.9567
Grams of Tare	27.7177	28.2196	41.7616	41.0985	30.7545	27.2323	30.9547
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0059	0.0022	0.0021	0.0019	0.0001	0.0000	0.0000
Total Grams Sample X 50	0.1850	0.0050	0.0100	0.0900	0.0050	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-005

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMUSC SP2 S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	13.9601	18.8650
Gravel 2.00 mm (g)	10	5.3063	7.1707
Gravel 0.850 mm (g)	20	5.2398	7.0808
Gravel 0.425 mm (g)	40	3.8308	5.1768
Gravel 0.250 mm (g)	60	0.9208	1.2443
Gravel 0.106 mm (g)	140	0.1958	0.2646
Gravel 0.075 mm (g)	200	0.0160	0.0216
S/C <0.075 mm (g)	Pan	0.0230	0.0311

Sieve Stack:

Total (g) Recov'd	29.4926
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	134.6853
Grams Beaker (Tare)	105.1924
GramsGravel/Sand	29.4929

I. Sample Preparation

Grams As Received Sample	36.3090
Percent (%) Solids	74.0
Grams Oven Dried Sample	26.8687

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	40.2512	29.2615	30.3426	29.8111	40.9101	29.1545	43.6855
Grams of Tare	40.2481	29.2588	30.3406	29.8091	40.9081	29.1525	43.6835
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0011	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.0200	0.0350	0.0000	0.0000	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-006

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMUSC SP2 S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	10.6865	14.1543
Gravel 2.00 mm (g)	10	12.9562	17.1605
Gravel 0.850 mm (g)	20	7.4986	9.9319
Gravel 0.425 mm (g)	40	2.6381	3.4942
Gravel 0.250 mm (g)	60	0.7648	1.0130
Gravel 0.106 mm (g)	140	0.3803	0.5037
Gravel 0.075 mm (g)	200	0.0406	0.0538
S/C <0.075 mm (g)	Pan	0.0362	0.0479

Sieve Stack:

Total (g) Recov'd	35.0013
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	144.6977
Grams Beaker (Tare)	109.6726
GramsGravel/Sand	35.0251

I. Sample Preparation

Grams As Received Sample	43.3050
Percent (%) Solids	75.5
Grams Oven Dried Sample	32.6953

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.3126	27.6663	28.2690	33.8028	40.3788	27.7718	27.2108
Grams of Tare	27.3104	27.6643	28.2670	33.8008	40.3768	27.7698	27.2088
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-007

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMLSH S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	1.2382	1.8236
Gravel 2.00 mm (g)	10	1.3077	1.9259
Gravel 0.850 mm (g)	20	4.0118	5.9084
Gravel 0.425 mm (g)	40	10.3618	15.2604
Gravel 0.250 mm (g)	60	7.9008	11.6359
Gravel 0.106 mm (g)	140	4.5707	6.7315
Gravel 0.075 mm (g)	200	0.3851	0.5672
S/C <0.075 mm (g)	Pan	0.1261	0.1857

Sieve Stack:

Total (g) Recov'd	29.9022
Total (%) Recov'd	99.9

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	149.2084
Grams Beaker (Tare)	119.2684
GramsGravel/Sand	29.9400

I. Sample Preparation

Grams As Received Sample	43.1380
Percent (%) Solids	67.9
Grams Oven Dried Sample	29.2907

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	28.3574	29.0771	31.7189	27.5026	28.3040	30.7663	30.9049
Grams of Tare	28.3504	29.0738	31.7165	27.5004	28.3020	30.7643	30.9029
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0050	0.0013	0.0004	0.0002	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.1850	0.0450	0.0100	0.0100	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-008

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMWFSC S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	4.1938	6.8526
Gravel 2.00 mm (g)	10	1.0767	1.7593
Gravel 0.850 mm (g)	20	2.4089	3.9361
Gravel 0.425 mm (g)	40	3.5032	5.7242
Gravel 0.250 mm (g)	60	3.7407	6.1123
Gravel 0.106 mm (g)	140	5.7991	9.4757
Gravel 0.075 mm (g)	200	1.1273	1.8420
S/C <0.075 mm (g)	Pan	0.2925	0.4779

Sieve Stack:

Total (g) Recov'd	22.1422
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	101.7660
Grams Beaker (Tare)	79.5616
GramsGravel/Sand	22.2044

I. Sample Preparation

Grams As Received Sample	34.7990
Percent (%) Solids	61.2
Grams Oven Dried Sample	21.2970

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	40.4350	28.7781	28.6790	27.6838	28.9005	28.9775	42.1690
Grams of Tare	40.4153	28.7700	28.6741	27.6808	28.8979	28.9755	42.1670
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0177	0.0061	0.0029	0.0010	0.0006	0.0000	0.0000
Total Grams Sample X 50	0.5800	0.1600	0.0950	0.0200	0.0300	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-009

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMWFSC S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	3.0349	4.7420
Gravel 2.00 mm (g)	10	4.2214	6.5959
Gravel 0.850 mm (g)	20	6.3330	9.8953
Gravel 0.425 mm (g)	40	5.7321	8.9564
Gravel 0.250 mm (g)	60	3.7553	5.8677
Gravel 0.106 mm (g)	140	2.9541	4.6158
Gravel 0.075 mm (g)	200	0.3110	0.4859
S/C <0.075 mm (g)	Pan	0.0721	0.1127

Sieve Stack:

Total (g) Recov'd	26.4139
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	132.7828
Grams Beaker (Tare)	106.2804
GramsGravel/Sand	26.5024

I. Sample Preparation

Grams As Received Sample	39.9230
Percent (%) Solids	64.0
Grams Oven Dried Sample	25.5507

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	40.1969	41.1705	34.6695	27.9099	28.5682	28.2537	28.5180
Grams of Tare	40.1850	41.1610	34.6645	27.9053	28.5649	28.2517	28.5160
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0099	0.0075	0.0030	0.0026	0.0013	0.0000	0.0000
Total Grams Sample X 50	0.1200	0.2250	0.0200	0.0650	0.0650	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-010

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMWFSC S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/23/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	0.0000	0.0000
Gravel 2.00 mm (g)	10	0.4964	0.8588
Gravel 0.850 mm (g)	20	1.6125	2.7898
Gravel 0.425 mm (g)	40	4.2718	7.3907
Gravel 0.250 mm (g)	60	5.8358	10.0965
Gravel 0.106 mm (g)	140	8.0520	13.9308
Gravel 0.075 mm (g)	200	1.4769	2.5552
S/C <0.075 mm (g)	Pan	0.4731	0.8185

Sieve Stack:

Total (g) Recov'd	22.2185
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	133.3918
Grams Beaker (Tare)	111.0726
GramsGravel/Sand	22.3192

I. Sample Preparation

Grams As Received Sample	38.8860
Percent (%) Solids	57.8
Grams Oven Dried Sample	22.4761

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.5221	27.5333	28.0377	34.2373	27.7348	29.2733	28.2218
Grams of Tare	27.4851	27.5203	28.0313	34.2345	27.7323	29.2713	28.2198
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0350	0.0110	0.0044	0.0008	0.0005	0.0000	0.0000
Total Grams Sample X 50	1.2000	0.3300	0.1800	0.0150	0.0250	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-011

Client:	Alaska Department of Fish and G	Sample Name:	2024 KGM HJC S1
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	3.6827	4.8203
Gravel 2.00 mm (g)	10	12.6959	16.6177
Gravel 0.850 mm (g)	20	9.7118	12.7118
Gravel 0.425 mm (g)	40	5.0289	6.5823
Gravel 0.250 mm (g)	60	2.8081	3.6755
Gravel 0.106 mm (g)	140	1.7874	2.3395
Gravel 0.075 mm (g)	200	0.1533	0.2007
S/C <0.075 mm (g)	Pan	0.0166	0.0217

Sieve Stack:

Total (g) Recov'd	35.8847
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	145.9764
Grams Beaker (Tare)	109.9664
GramsGravel/Sand	36.0100

I. Sample Preparation

Grams As Received Sample	45.9340
Percent (%) Solids	76.4
Grams Oven Dried Sample	35.0936

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.9983	31.3914	28.8374	27.3183	40.3512	30.1469	28.4747
Grams of Tare	27.9954	31.3888	28.8354	27.3163	40.3492	30.1449	28.4727
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0009	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.0150	0.0300	0.0000	0.0000	0.0000	0.0000	0.0000

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-B

Analyst: ZH KK Date: 9/3/2024

Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-012

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM HJC S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	7.5971	10.2112
Gravel 2.00 mm (g)	10	5.9659	8.0187
Gravel 0.850 mm (g)	20	2.9626	3.9820
Gravel 0.425 mm (g)	40	2.7943	3.7558
Gravel 0.250 mm (g)	60	3.0636	4.1177
Gravel 0.106 mm (g)	140	6.5649	8.8238
Gravel 0.075 mm (g)	200	1.8838	2.5320
S/C <0.075 mm (g)	Pan	0.5380	0.7231

Sieve Stack:

Total (g) Recov'd	31.3702
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	140.1078
Grams Beaker (Tare)	108.7193
GramsGravel/Sand	31.3885

I. Sample Preparation

Grams As Received Sample	44.6730
Percent (%) Solids	74.4
Grams Oven Dried Sample	33.2367

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	27.1472	40.3012	41.6039	27.7517	27.8030	27.3117	41.9246
Grams of Tare	27.0939	40.2861	41.5988	27.7496	27.8010	27.3097	41.9226
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0513	0.0131	0.0031	0.0001	0.0000	0.0000	0.0000
Total Grams Sample X 50	1.9100	0.5000	0.1500	0.0050	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Wa 98626

Service Request #: K2407891
Sample #: K2407891-013

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGM HJC S3
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	3.6573	4.9895
Gravel 2.00 mm (g)	10	8.5930	11.7231
Gravel 0.850 mm (g)	20	5.3846	7.3460
Gravel 0.425 mm (g)	40	3.9356	5.3692
Gravel 0.250 mm (g)	60	3.5085	4.7865
Gravel 0.106 mm (g)	140	3.3287	4.5412
Gravel 0.075 mm (g)	200	0.3086	0.4210
S/C <0.075 mm (g)	Pan	0.0326	0.0445

Sieve Stack:

Total (g) Recov'd	28.7489
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	138.9199
Grams Beaker (Tare)	110.2054
GramsGravel/Sand	28.7145

I. Sample Preparation

Grams As Received Sample	38.4030
Percent (%) Solids	73.3
Grams Oven Dried Sample	28.1494

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	28.1962	27.6404	28.2856	28.5587	28.5071	28.0542	28.0931
Grams of Tare	28.1920	27.6383	28.2836	28.5567	28.5051	28.0522	28.0911
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0022	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.1050	0.0050	0.0000	0.0000	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-014

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMLSH S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	1.3119	1.8715
Gravel 2.00 mm (g)	10	3.3034	4.7124
Gravel 0.850 mm (g)	20	6.1241	8.7362
Gravel 0.425 mm (g)	40	7.4275	10.5956
Gravel 0.250 mm (g)	60	3.7455	5.3431
Gravel 0.106 mm (g)	140	2.0038	2.8585
Gravel 0.075 mm (g)	200	0.1934	0.2759
S/C <0.075 mm (g)	Pan	0.0725	0.1034

Sieve Stack:

Total (g) Recov'd	24.1821
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	144.5222
Grams Beaker (Tare)	120.3083
GramsGravel/Sand	24.2139

I. Sample Preparation

Grams As Received Sample	35.0620
Percent (%) Solids	70.1
Grams Oven Dried Sample	24.5785

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	33.9623	27.5764	34.5426	27.1997	27.5964	41.1268	27.5168
Grams of Tare	33.9578	27.5735	34.5398	27.1976	27.5944	41.1248	27.5148
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0025	0.0009	0.0008	0.0001	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.0800	0.0050	0.0350	0.0050	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

ALS Group USA, Corp.
dba ALS Environmental

Service Request #: K2407891
Sample #: K2407891-014DUP

Client:	Alaska Department of Fish and (	Sample Name:	2024 KGMLSH S2
Project:	Coeur AK Biomonitoring	Date Collected:	7/22/2024
Sample Matrix:	Soil	Date Received:	7/31/2024
		Date Analyzed:	9/3/2024

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 4.75 mm (g)	4	5.5912	8.0565
Gravel 2.00 mm (g)	10	2.7137	3.9102
Gravel 0.850 mm (g)	20	6.3326	9.1248
Gravel 0.425 mm (g)	40	6.4126	9.2401
Gravel 0.250 mm (g)	60	2.9929	4.3125
Gravel 0.106 mm (g)	140	1.4427	2.0788
Gravel 0.075 mm (g)	200	0.1352	0.1948
S/C <0.075 mm (g)	Pan	0.0316	0.0455

Sieve Stack:

Total (g) Recov'd	25.6525
Total (%) Recov'd	100

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	134.7594
Grams Beaker (Tare)	109.0736
GramsGravel/Sand	25.6858

I. Sample Preparation

Grams As Received Sample	35.1480
Percent (%) Solids	69.4
Grams Oven Dried Sample	24.3927

III. Determination of Silt/Clay Fraction

Temperature: 22 **Thermometer ID#** C65669

	4	5	6	7	8	9	10
Total Volume of Sample (mls)	1000	1000	1000	1000	1000	1000	1000
Amount of Dispersant	10	10	10	10	10	10	10
Volume of Aliquot (mls)	20	20	20	20	20	20	20
Grams Sample, Dispersant & Tare	30.5424	27.2941	28.0396	27.7705	31.4385	27.4855	27.8627
Grams of Tare	30.5379	27.2912	28.0367	27.7684	31.4365	27.4835	27.8607
Grams of Dispersant Correction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Grams of Sample	0.0025	0.0009	0.0009	0.0001	0.0000	0.0000	0.0000
Total Grams Sample X 50	0.0800	0.0000	0.0400	0.0050	0.0000	0.0000	0.0000

Analyst: ZH KK Date: 9/3/2024
Reviewed by: Date: 09/13/24

Work Request # K2407847, 7891
II IV

Date Analyzed: 8-1-24

Analyst: MAS

Run # 849403

Analysis: PSEP Sulfide

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the bench sheet crossed out?	yes/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	yes/no/NA

COMMENTS:

- All samples for K2407891 were received past hold.

Secondary Approved by: RRM Date: 8/2/24

DQREPORT

Analytical Results Summary

Instrument Name: K-UV-VIS-06 **Analyst:** MSPECHT **Analysis Lot:** 849403 **Method/Testcode:** PSEP Sulfide/PSEP Sulfide

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407847-001	Sulfide, Total	N/A		Sediment	0.26 mg/L	10.4160 g	31 mg/Kg #	25	8	24			8/1/24 17:25:00	N	II
K2407847-002	Sulfide, Total	N/A		Sediment	0.28 mg/L	10.1480 g	35 mg/Kg #	25	8	25			8/1/24 17:25:00	N	II
K2407891-001	Sulfide, Total	N/A		Soil	0.03 mg/L	10.6810 g	0.94 mg/Kg # U	1	0.30	0.94			8/1/24 17:25:00	N	IV
K2407891-002	Sulfide, Total	N/A		Soil	0.03 mg/L	10.8040 g	0.93 mg/Kg # U	1	0.30	0.93			8/1/24 17:25:00	N	IV
K2407891-003	Sulfide, Total	N/A		Soil	0.02 mg/L	10.4390 g	0.96 mg/Kg # U	1	0.30	0.96			8/1/24 17:25:00	N	IV
K2407891-004	Sulfide, Total	N/A		Soil	0.02 mg/L	10.4560 g	0.96 mg/Kg # U	1	0.30	0.96			8/1/24 17:25:00	N	IV
K2407891-005	Sulfide, Total	N/A		Soil	0.01 mg/L	10.8060 g	0.93 mg/Kg # U	1	0.30	0.93			8/1/24 17:25:00	N	IV
K2407891-006	Sulfide, Total	N/A		Soil	0.01 mg/L	10.7060 g	0.93 mg/Kg # U	1	0.30	0.93			8/1/24 17:25:00	N	IV
K2407891-007	Sulfide, Total	N/A		Soil	0.03 mg/L	10.5460 g	0.95 mg/Kg # U	1	0.30	0.95			8/1/24 17:25:00	N	IV
K2407891-008	Sulfide, Total	N/A		Soil	0.02 mg/L	10.9000 g	0.92 mg/Kg # U	1	0.30	0.92			8/1/24 17:25:00	N	IV
K2407891-009	Sulfide, Total	N/A		Soil	0.05 mg/L	10.6700 g	0.94 mg/Kg # U	1	0.30	0.94			8/1/24 17:25:00	N	IV
K2407891-010	Sulfide, Total	N/A		Soil	0.07 mg/L	10.1340 g	0.35 mg/Kg # J	1	0.30	0.99			8/1/24 17:25:00	N	IV
K2407891-011	Sulfide, Total	N/A		Soil	0.02 mg/L	10.7490 g	0.93 mg/Kg # U	1	0.30	0.93			8/1/24 17:25:00	N	IV
K2407891-012	Sulfide, Total	N/A		Soil	0.03 mg/L	10.4300 g	0.96 mg/Kg # U	1	0.30	0.96			8/1/24 17:25:00	N	IV
K2407891-013	Sulfide, Total	N/A		Soil	0.02 mg/L	10.3810 g	0.96 mg/Kg # U	1	0.30	0.96			8/1/24 17:25:00	N	IV
K2407891-014	Sulfide, Total	N/A		Soil	0.06 mg/L	10.6790 g	0.94 mg/Kg # U	1	0.30	0.94			8/1/24 17:25:00	N	IV
KQ2411910-01	Sulfide, Total	MS	K2407891-011	Soil	0.38 mg/L	10.2760 g	370 mg/Kg #	200	60	190	97		8/1/24 17:25:00	N	IV
KQ2411910-02	Sulfide, Total	DMS	K2407891-011	Soil	0.38 mg/L	10.4640 g	370 mg/Kg #	200	60	190	98	<1	8/1/24 17:25:00	N	IV
KQ2411910-03	Sulfide, Total	DUP	K2407891-011	Soil	0.01 mg/L	10.3750 g	0.96 mg/Kg # U	1	0.30	0.96		NC	8/1/24 17:25:00	N	IV
KQ2411910-04	Sulfide, Total	TRP	K2407891-011	Soil	0.01 mg/L	10.3360 g	0.97 mg/Kg # U	1	0.30	0.97		NC	8/1/24 17:25:00	N	IV
KQ2411910-05	Sulfide, Total	MB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/1/24 17:25:00	N	II
KQ2411910-06	Sulfide, Total	LCS		Sediment	0.41 mg/L	10 g	410 mg/Kg	200	60	200	106		8/1/24 17:25:00	N	II
KQ2411960-01	Sulfide, Total	CCV		Sediment	0.57 mg/L	10 g	0.571 mg/L	1					8/1/24 17:25:00	N	II
KQ2411960-02	Sulfide, Total	CCV		Sediment	0.57 mg/L	10 g	0.571 mg/L	1					8/1/24 17:25:00	N	II
KQ2411960-03	Sulfide, Total	CCV		Sediment	0.57 mg/L	10 g	0.570 mg/L	1					8/1/24 17:25:00	N	II
KQ2411960-04	Sulfide, Total	CCV		Sediment	0.57 mg/L	10 g	0.568 mg/L	1					8/1/24 17:25:00	N	II
KQ2411960-05	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/1/24 17:25:00	N	II
KQ2411960-06	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/1/24 17:25:00	N	II
KQ2411960-07	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/1/24 17:25:00	N	II
KQ2411960-08	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			8/1/24 17:25:00	N	II

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Environmental
Kelso

SulfidePSEP_8_1_2024_5:25:00_PM

01-Aug-2024 05:56 PM
Method name: PSEP Sulfide 8-1-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 01-Aug-2024 05:45 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Sample	Absorbance(λ)	Concentration [mg/L]
ccv 1	0.213	0.571
ccb 1	0.001	out of range
mb 1	0.005	out of range
lcs 200x 1	0.154	0.410
7847-1 25x 1	0.100	0.261
7847-2 25x 1	0.108	0.281
7891-1 1	0.015	0.027
7891-2 1	0.016	0.030
7891-3 1	0.014	0.023
7891-4 1	0.010	0.015
7891-5 1	0.009	0.010
7891-6 1	0.009	0.010
ccv2 1	0.213	0.571
ccb2 1	0.001	out of range
7891-7 1	0.016	0.029
7891-8 1	0.011	0.015
7891-9 1	0.022	0.047
7891-10 1	0.031	0.070
7891-11 1	0.013	0.021
7891-11dup 1	0.010	0.014
7891-11trip 1	0.010	0.013
7891-11ms 200x 1	0.142	0.377
7891-11msd 200x 1	0.144	0.382
7891-12 1	0.014	0.025
7891-13 1 -NR, 11th sample in bracket	0.011	0.016
7891-14 1 -NR, 12th sample in bracket	0.028	0.062
ccv3 1	0.213	0.570
ccb3 1 -MAS 8-1-24	0.002	out of range
7891-13 1	0.011	0.016
7891-14 1	0.028	0.063
ccv4 1	0.212	0.568
ccb4 1	0.001	out of range

ALS Environmental
Kelso

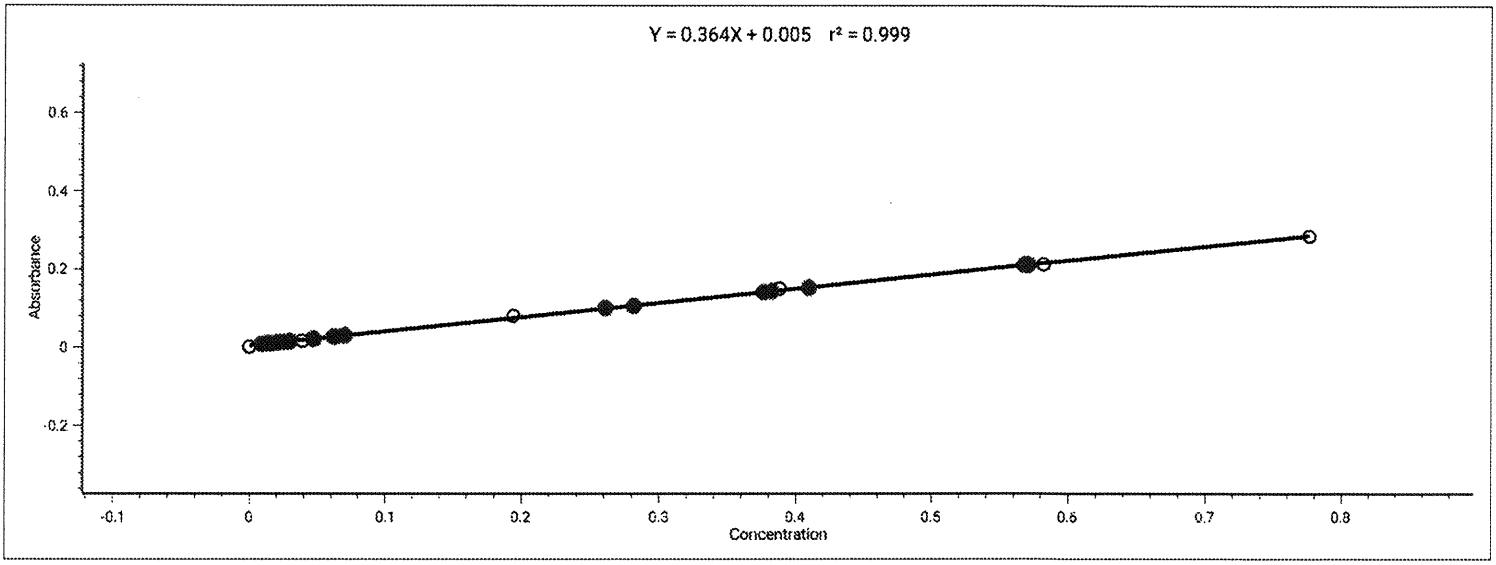
SulfidePSEP_8_1_2024_5:25:00_PM

01-Aug-2024 05:56 PM
Method name: PSEP Sulfide 8-1-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 01-Aug-2024 05:45 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Quant method parameters	
Equation	**Y = 0.364X + 0.005**
R^2:	**1.00**
λ	**650 nm**
Reference λ	



Standard	Absorbance(λ)	Concentration [mg/L]
Standard 1	0.001	out of range
Standard 2	0.017	0.039
Standard 3	0.081	0.194
Standard 4	0.151	0.388
Standard 5	0.214	0.582
Standard 6	0.287	0.776

Calibration Curve Relative Error Evaluation - Inorganics

Method:	PSEP SULFIDE
Run Number:	849403
Instrument:	K-UV-VIS-06
Date:	08/01/24

Instructions:

1) Enter slope (a) and intercept (b) from calibration raw data.
2) Enter calibration true values (do not include the origin (0,0) as a clibration point).
3) Enter the measured response for each calibration point.
4) If different than ±10%, update the %RE criteria to the method's CCV criteria.
   (Note that the low point criteria is ± 50% for all methods)
5) Reject the calibration if any standard point "Fail".

Y = aX + b

a =	0.364
b =	0.005

Standard #	True Value	Measured Response	Calculated Concetration	Percent Relative Error (%RE)	%RE Criteria	Pass/Fail
1	0.039	0.017	0.0330	-15.5	50	Pass
2	0.194	0.081	0.2088	7.6	10	Pass
3	0.388	0.151	0.4011	3.4	10	Pass
4	0.582	0.214	0.5742	-1.3	10	Pass
5	0.776	0.287	0.7747	-0.2	10	Pass
6					10	
7					10	
8					10	

PSEP Curve		
Amount (mL)	**Conc (mg/L)**	**S2 WSTD (mg/L) 200x dilution**
0.00	0.0000	**19.40**
0.10	0.0388	
0.50	0.1940	
1.00	0.3880	
1.50	0.5820	
2.00	0.7760	

Change WL to 650 nm

CCV S2 mg/L:	3879

CCV Standardization Check	
Ml S203 Check 1:	1.33
Ml S203 Check 2:	1.31
Avg ml S203:	**1.32**

ICV Standardization Check		S2 mg/L RPD	(+/- 10%)
Ml S203 Check:	1.19	4.0	
ICV S2 mg/L:	3931		

ALS ENVIRONMENTAL

Work Order #.: K2407847, 7891

Analysis: 9030/ 9030M/ AVS/ PSEP

Date Prepared	Sample Name / Lab Code	Initial Wt./Vol. (g) or (ml)	Final Volume (ml)	mg/L - mg/kg As Rec'd	% Solids	mg/kg Dry Wt.
8-1-24	MB	10.0	50			
	LCS	10.0				
	7847-1	10.416				
	⊥ -2	10.148				
	7891-1	10.681				
	-2	10.804				
	-3	10.439				
	-4	10.456				
	-5	10.806				
	-6	10.706				
	-7	10.546				
	-8	10.900				
	-9	10.670				
	-10	10.134				
	-11	10.749				
	-11 dup	10.375				
	-11 trip	10.336				
	-11 MS	10.276				
	-11 MSd	10.464				
	-12	10.430				
	-13	10.381				
	-14	10.679				
			N			
			A			
					MAS	
					8-1-24	

Prepared By: MAS	8-1-24
Analyzed By: MAS	8-1-24
Reviewed By: RRM	8/2/24

Preparation Information Benchsheet

Prep Run#: 442519
Team: GenChem/MSPECHT
Number of Copies to make: 2

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 8/1/24 14:15

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411910-05	MB		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
2	KQ2411910-06	LCS		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
3	K2407847-001	KL5-10-ASulfides	.01	PSEP Sulfide/PSEP Sulfide		Sediment	10.4160g	50.00mL	
4	K2407847-002	KL5-10-BSulfides	.01	PSEP Sulfide/PSEP Sulfide		Sediment	10.1480g	50.00mL	
5	K2407891-001	2024 KGMUSC S1	.04	PSEP Sulfide/PSEP Sulfide		Soil	10.6810g	50.00mL	
6	K2407891-002	2024 KGMUSC S2	.02	PSEP Sulfide/PSEP Sulfide		Soil	10.8040g	50.00mL	
7	K2407891-003	2024 KGMUSC S3	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.4390g	50.00mL	
8	K2407891-004	2024 KGMUSC SP2 S1	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.4560g	50.00mL	
9	K2407891-005	2024 KGMUSC SP2 S2	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.8060g	50.00mL	
10	K2407891-006	2024 KGMUSC SP2 S3	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.7060g	50.00mL	ZBIBI k-balance-50
11	K2407891-007	2024 KGMLSH S3	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.5460g	50.00mL	
12	K2407891-008	2024 KGMWFSC S1	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.9000g	50.00mL	
13	K2407891-009	2024 KGMWFSC S2	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.6700g	50.00mL	
14	K2407891-010	2024 KGMWFSC S3	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.1340g	50.00mL	
15	K2407891-011	2024 KGM HJC S1	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.7490g	50.00mL	
16	KQ2411910-03	K2407891-011 DUP	.01	PSEP Sulfide/PSEP Sulfide		Solid	10.3750g	50.00mL	
17	KQ2411910-04	K2407891-011 TRP	.01	PSEP Sulfide/PSEP Sulfide		Solid	10.3360g	50.00mL	
18	KQ2411910-01	K2407891-011 MS	.01	PSEP Sulfide/PSEP Sulfide		Solid	10.2760g	50.00mL	
19	KQ2411910-02	K2407891-011 DMS	.01	PSEP Sulfide/PSEP Sulfide		Solid	10.4640g	50.00mL	
20	K2407891-012	2024 KGM HJC S2	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.4300g	50.00mL	
21	K2407891-013	2024 KGM HJC S3	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.3810g	50.00mL	
22	K2407891-014	2024 KGMLSH S2	.01	PSEP Sulfide/PSEP Sulfide		Soil	10.6790g	50.00mL	

Preparation Steps

Step: Distillation
Started: 8/1/24 14:15
Finished: 8/1/24 16:00
By: MSPECHT
Comments

Comments: _____

Reviewed By: RRM Date: 8/2/24

Preparation Information Benchsheet

Prep Run#: 442519
Team: GenChem/MSPECHT

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 8/1/24 14:15

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

ALS Environmental - Laboratory Note Sheet

Service Request Number(s):
K2407847, 7891

Sample Number	Initial Volume	Final Volume	Dilution Factor		
LCS	0.125mL	25mL	200 X		
7847-1	1mL		25 X		
⊥ -2	⊥		⊥		
7891-11MS	0.125mL		200 X		
⊥ -11MSd	⊥		⊥		
			N/A		
				MAS	
				8-1-24	

Comments/Notes:

Analyst: MAS Date: 8-1-24

Reviewed: RRM Date: 8/2/24

R:\WET\ANALYSES\Dilution Benchsheet 2022

StarLims Run #: 849403

Analysis: **Sulfide**

Method: **PSEP**

Al Treated HCl: 24-GEN-05-15K Stock Amine Solution (DPD): 24-GEN-05-18G

Iodine Solution: 24-GEN-05-15H DPD Working Solution: 24-GEN-05-18K

Ferric Chloride: 24-GEN-05-15J

Sodium Hydroxide 0.5N: 24-GEN-05-18J

(CCV) Sodium Thiosulfate 0.025N: 23-GEN-06-17F HCl (6N): 24-GEN-05-15I

(ICV) Sodium Thiosulfate 0.025N: 23-GEN-06-09I

Starch Indicator Solution: 24-GEN-05-11J H2SO4 (50%): 23-GEN-1-96L

Sulfide Stock Standard: 21-GEN-S2/4-3A

Sulfide Working Standard: 21-GEN-S2/4-83N

Equipment: K-HOTBLOCK-03,K-HOTBLOCK-04, K-UV-VIS-06

Pipettes: Ophos-Alfred, TOC-AGENT SMITH, TEALY

Analyzed By: MAS	Date Analyzed: 8/1/2024
Reviewed By: RRM	Date Reviewed: 8/2/24

Work Request # K2407891, K2407895

Date Analyzed: 8/2/24

Analyst: ARM

Run # 849441

Analysis: TOC Soil PSEP

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	yes/no/(NA)
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

Final Approved by: RRM Date: 8/5/24

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849441 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407891-007	Carbon, Total Organic (TOC)	N/A		Soil	0.41 Percent	250 mg	0.41 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-011	Carbon, Total Organic (TOC)	N/A		Soil	0.05 Percent	250.3 mg	0.05 Percent J	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-012	Carbon, Total Organic (TOC)	N/A		Soil	0.41 Percent	250 mg	0.41 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-013	Carbon, Total Organic (TOC)	N/A		Soil	0.11 Percent	250.6 mg	0.11 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407891-014	Carbon, Total Organic (TOC)	N/A		Soil	0.39 Percent	250.3 mg	0.39 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-001	Carbon, Total Organic (TOC)	N/A		Soil	0.42 Percent	250 mg	0.42 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-002	Carbon, Total Organic (TOC)	N/A		Soil	0.20 Percent	250 mg	0.20 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-003	Carbon, Total Organic (TOC)	N/A		Soil	0.09 Percent	250 mg	0.09 Percent J	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-004	Carbon, Total Organic (TOC)	N/A		Soil	0.28 Percent	250 mg	0.28 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-005	Carbon, Total Organic (TOC)	N/A		Soil	0.27 Percent	250.4 mg	0.27 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-006	Carbon, Total Organic (TOC)	N/A		Soil	0.25 Percent	250.3 mg	0.25 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-007	Carbon, Total Organic (TOC)	N/A		Soil	4.05 Percent	150 mg	4.05 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-008	Carbon, Total Organic (TOC)	N/A		Soil	2.76 Percent	150 mg	2.76 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-009	Carbon, Total Organic (TOC)	N/A		Soil	1.03 Percent	150.1 mg	1.03 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
K2407895-013	Carbon, Total Organic (TOC)	N/A		Soil	0.34 Percent	250.1 mg	0.34 Percent	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-01	Carbon, Total Organic (TOC)	DUP	K2407891-007	Soil	0.40 Percent	125.3 mg	0.40 Percent	1	0.005	0.10		2	8/2/24 09:22:19	N	IV
KQ2411967-02	Carbon, Total Organic (TOC)	TRP	K2407891-007	Soil	0.41 Percent	125 mg	0.41 Percent	1	0.005	0.10		1	8/2/24 09:22:19	N	IV
KQ2411967-03	Carbon, Total Organic (TOC)	MS	K2407891-007	Soil	2.87 Percent	250 mg	2.87 Percent	1	0.005	0.10	100		8/2/24 09:22:19	N	IV
KQ2411967-04	Carbon, Total Organic (TOC)	DMS	K2407891-007	Soil	2.80 Percent	250 mg	2.80 Percent	1	0.005	0.10	99	1	8/2/24 09:22:19	N	IV
KQ2411967-05	Carbon, Total Organic (TOC)	LCS		Soil	3.23 Percent	250.8 mg	3.23 Percent	1	0.005	0.10	108		8/2/24 09:22:19	N	IV
KQ2411967-06	Carbon, Total Organic (TOC)	MB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-07	Carbon, Total Organic (TOC)	CCV		Soil	12.19 Percent	25.7 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV
KQ2411967-08	Carbon, Total Organic (TOC)	CCV		Soil	12.22 Percent	25.6 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV
KQ2411967-09	Carbon, Total Organic (TOC)	CCV		Soil	12.22 Percent	25.5 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849441 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2411967-10	Carbon, Total Organic (TOC)	CCV		Soil	12.23 Percent	25.2 mg	12.2 Percent	1					8/2/24 09:22:19	N	IV
KQ2411967-11	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-12	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-13	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV
KQ2411967-14	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/2/24 09:22:19	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

AnalysisGroup

AnalysisGroup: % TOC 2024E

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 7/12/2024 11:11:53 AM
Last modification: 8/2/2024 1:45:32 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.19% 102%	25.700mg	8/2/2024 9:22:19 AM	
CCB	TC: 0.00016%	250.000mg	8/2/2024 9:32:11 AM	TC: Out of the calibrated ranges
LCS	TC: 3.23% 108%	250.800mg	8/2/2024 9:40:00 AM	
MB	TC: 0.0014%	250.000mg	8/2/2024 9:50:43 AM	TC: Out of the calibrated ranges
K2407891-007	TC: 0.41%	250.000mg	8/2/2024 9:59:07 AM	
K2407891-007D	TC: 0.40%	250.000mg	8/2/2024 10:08:31 AM	
K2407891-007TR	TC: 0.41%	250.000mg	8/2/2024 10:18:10 AM	
K2407891-007MS	TC: 2.87%	125.300mg	8/2/2024 10:28:06 AM	
K2407891-007MSD	TC: 2.80%	125.000mg	8/2/2024 10:37:39 AM	
K2407891-011	TC: 0.049%	250.300mg	8/2/2024 10:47:25 AM	
K2407891-012	TC: 0.41%	250.000mg	8/2/2024 10:56:10 AM	
K2407891-013	TC: 0.11%	250.600mg	8/2/2024 11:05:35 AM	
CCV	TC: 12.22% 102%	25.600mg	8/2/2024 11:14:30 AM	
CCB	TC: 0.00000%	250.000mg	8/2/2024 11:23:43 AM	TC: Out of the calibrated ranges
K2407891-014	TC: 0.39%	250.300mg	8/2/2024 11:30:36 AM	
K2407895-001	TC: 0.42%	250.000mg	8/2/2024 11:40:34 AM	
K2407895-002	TC: 0.20%	250.000mg	8/2/2024 11:49:38 AM	
K2407895-003	TC: 0.088%	250.000mg	8/2/2024 11:58:14 AM	
K2407895-004	TC: 0.28%	250.000mg	8/2/2024 12:07:06 PM	
K2407895-005	TC: 0.27%	250.400mg	8/2/2024 12:15:57 PM	
K2407895-006	TC: 0.25%	250.300mg	8/2/2024 12:25:27 PM	
K2407895-007	TC: 4.05%	150.000mg	8/2/2024 12:34:56 PM	
K2407895-008	TC: 2.76%	150.000mg	8/2/2024 12:43:45 PM	
K2407895-009	TC: 1.03%	150.100mg	8/2/2024 12:53:31 PM	

AR 8/2/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

AnalysisGroup

AnalysisGroup: % TOC 2024E

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.22% 102%	25.500mg	8/2/2024 1:03:01 PM	
CCB	TC: 0.00000%	250.000mg	8/2/2024 1:11:53 PM	TC: Out of the calibrated ranges
K2407895-013	TC: 0.34%	250.100mg	8/2/2024 1:19:18 PM	
CCV	TC: 12.23% 102%	25.200mg	8/2/2024 1:28:47 PM	
CCB	TC: 0.00006%	250.000mg	8/2/2024 1:38:01 PM	TC: Out of the calibrated ranges

8/2/24

Service Request: K2407891

Date Weighed: 8/2/2024

Analyst: AEM

Method: 9060 TOC Modified

Analysis: Total Organic Carbon in Soil

Prep Run / Run # 442523/442536 849441

Sample Position	Sample ID	Weight (mg)
1	Clean	NA
2	CCV	25.7
3	CCB	250.0
4	LCS	250.8
5	MB	250.0
6	K2407891-007	250.0
7	K2407891-007D	250.0
8	K2407891-007TR	250.0
9	K2407891-007MS	125.3
10	K2407891-007MSD	125.0
11	K2407891-011	250.3
12	K2407891-012	250.0
13	K2407891-013	250.6
14	CCV	25.6
15	CCB	250.0
16	K2407891-014	250.3
17	K2407895-001	250.0
18	K2407895-002	250.0
19	K2407895-003	250.0
20	K2407895-004	250.0
21	K2407895-005	250.4
22	K2407895-006	250.3
23	K2407895-007 *	150.0
24	K2407895-008 *	150.0

Sample Position	Sample ID	Weight (mg)
25	K2407895-009 *	150.1
26	CCV	25.5
27	CCB	250.0
28	K2407895-013	250.1
29	CCV	25.2
30	CCB	250.0
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		

MS CaCO3 (mg)	K2407891-007MS	25.7
MSD CaCO3 (mg)	K2407891-007MSD	25.2

* - High organic content

Equipment: K-TOC-04

Calibration Expires: 3/14/25

Balance ID: K-BALANCE-38

HCL ID: 19-GEN-12-9-F, Exp: 1/29/25

Oven ID: K-OVEN-11

Thermometer ID: K-OVEN-11

CCV: CaCO3, JT Baker, ID: 19-GEN-13-71-A, Lot # 228036, Exp: 2/20/26, TV = 12.0 % C

LCS/SRM: NIST SRM, Lot # 1941b, Organics in Marine Sediment, ID: 19-GEN-13-97-J, Exp: 9/14/32, TV = 2.99 % TOC

Calibration QC Check

AnalysisGroup

AnalysisGroup: % TOC 2024b

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 2/23/2024 5:07:30 PM
Last modification: 3/15/2024 2:02:58 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
ICV - 25mg	TC: 11.81%	25.200mg	3/15/2024 12:12:46 PM	
ICV - 100mg	TC: 11.99%	100.300mg	3/15/2024 12:22:18 PM	
ICB	TC: 0.0014%	250.000mg	3/15/2024 12:32:34 PM	TC: Out of the calibrated ranges
CCV	TC: 11.85%	25.100mg	3/15/2024 12:41:07 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 12:50:16 PM	TC: Out of the calibrated ranges
LCS	TC: 3.14%	250.300mg	3/15/2024 12:58:11 PM	
DLCS	TC: 3.12%	250.300mg	3/15/2024 1:09:41 PM	
MB	TC: 0.0053%	250.000mg	3/15/2024 1:20:59 PM	TC: Out of the calibrated ranges
LOQ - 0.1% C	TC: 0.099%	253.300mg	3/15/2024 1:29:28 PM	
LOD - 0.01% C	TC: 0.014%	251.100mg	3/15/2024 1:37:55 PM	
CCV	TC: 11.90%	25.200mg	3/15/2024 1:46:25 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 1:55:32 PM	TC: Out of the calibrated ranges

ICV: 19-GEN-13-94-A (TV = 12% C)
CCV: 19-GEN-13-71-A (TV = 12% C)
LCS: 19-GEN-13-97-J (TV = 2.99% C / Toc)
LOQ: 19-GEN-12-7-G (TV = 0.1% C)
LOD: 19-GEN-12-7-H (TV = 0.01% C)

MB/LCS/DLCS → Acidified w/ 19-GEN-12-8-K

DAB 3/15/24

Method

Method: TOC by Manual Acidification - 3/14/24 **Version** 3

Created on: 3/14/2024 1:39:46 PM **of:** User
Last modification: 3/14/2024 5:28:48 PM **of:** User

Status: authorized
State: solid
Furnace: Ceramic tube (CS) - horizontal

Determinations:
Determinations: 1 - 1
Calculation algorithm: Conc_solid_EA4000_%
Operands:
Weight 1mg

Process:
FPG EA4000 (Default)
Furnace temperature 1100°C

Detection:

	TC
Detector	C_C201
Maximum integration time	600s
Stability	3
Start	0.12ppm
Threshold	5ppm

CalibrationData:

Calibration parameters TC		**[CR1]3,932AU - 47,966AU**	**[CR2]47,966AU - 3,627,304AU**
Type		Measurement	Measurement
Linked on		3/14/2024	3/14/2024
Name		Cal_TOC by Manual Acidification - 3/14/24_20240314_161842	Cal_TOC by Manual Acidification - 3/14/24_20240314_142421
Regression	**Type**	linear	linear
	K0	-3.118e+0	2.144e+1
	K1	6.357e-3	6.62e-3
Daily factor		1	1
	Type	Default	Default
	Date	3/14/2024	3/14/2024

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1

Calibration of: 3/14/2024 2:34:16 PM **of:** User
Last modification: 3/14/2024 3:51:20 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.62e-3*I+2.144e+1
K0: 2.144e+1
K1: 6.62e-3
Calibration range: 42,076AU - 3,627,304AU

Residual standard deviation: 10,941AU
Method standard deviation: 72.44211
Method variation coefficient: 0.97368%
Quality of replicates: 0.99994
Correlation coefficient: 0.99997

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 150.59µg
Identification limit: 301.18µg
Quantification limit: 560.69µg

Constant concentration: 12.00%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 2.500mg	48,075AU	13.59%	13.2%	0.000AU
2	1/1	Weight: 5.200mg	90,273AU	11.91%	-0.79%	0.000AU
3	1/1	Weight: 10.200mg	177,764AU	11.75%	-2.10%	0.000AU
4	1/1	Weight: 15.100mg	262,109AU	11.63%	-3.05%	0.000AU
5	1/1	Weight: 24.900mg	441,009AU	11.81%	-1.57%	0.000AU
6	1/1	Weight: 50.100mg	912,060AU	12.10%	0.79%	0.000AU
7	1/1	Weight: 99.900mg	1,812,969AU	12.04%	0.30%	0.000AU
8	1/1	Weight: 149.800mg	2,729,736AU	12.08%	0.65%	0.000AU
9	1/1	Weight: 200.300mg	3,610,903AU	11.95%	-0.45%	0.000AU

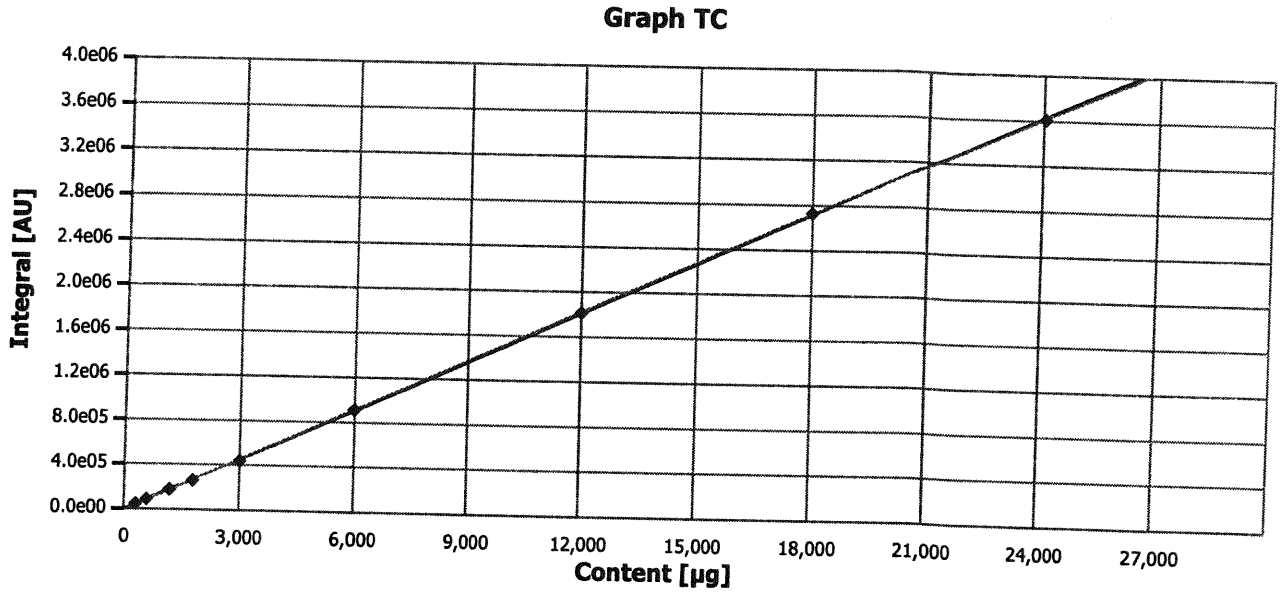
Calcium Carbonate ID: 19-GEN-13-71-A (TV= 12% C)

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1



Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1

Calibration of: 3/14/2024 4:26:04 PM **of:** User
Last modification: 3/14/2024 5:27:01 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.357e-3*I-3.118e+0
K0: -3.118e+0
K1: 6.357e-3
Calibration range: 3,932AU - 47,966AU

Residual standard deviation: 1,350AU
Method standard deviation: 8.63664
Method variation coefficient: 5.99715%
Quality of replicates: 0.99354
Correlation coefficient: 0.99676

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 20.04µg
Identification limit: 40.09µg
Quantification limit: 69.61µg

Constant concentration: 0.100%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 25.400mg	3,932AU	0.086%	-13.9%	0.000AU
2	1/1	Weight: 50.300mg	8,913AU	0.11%	6.44%	0.000AU
3	1/1	Weight: 75.000mg	11,596AU	0.094%	-5.87%	0.000AU
4	1/1	Weight: 99.800mg	15,331AU	0.095%	-5.47%	0.000AU
5	1/1	Weight: 149.900mg	26,864AU	0.11%	11.8%	0.000AU
6	1/1	Weight: 200.100mg	32,001AU	0.10%	0.11%	0.000AU
7	1/1	Weight: 249.800mg	39,745AU	0.100%	-0.11%	0.000AU
8	1/1	Weight: 301.800mg	46,777AU	0.097%	-2.50%	0.000AU

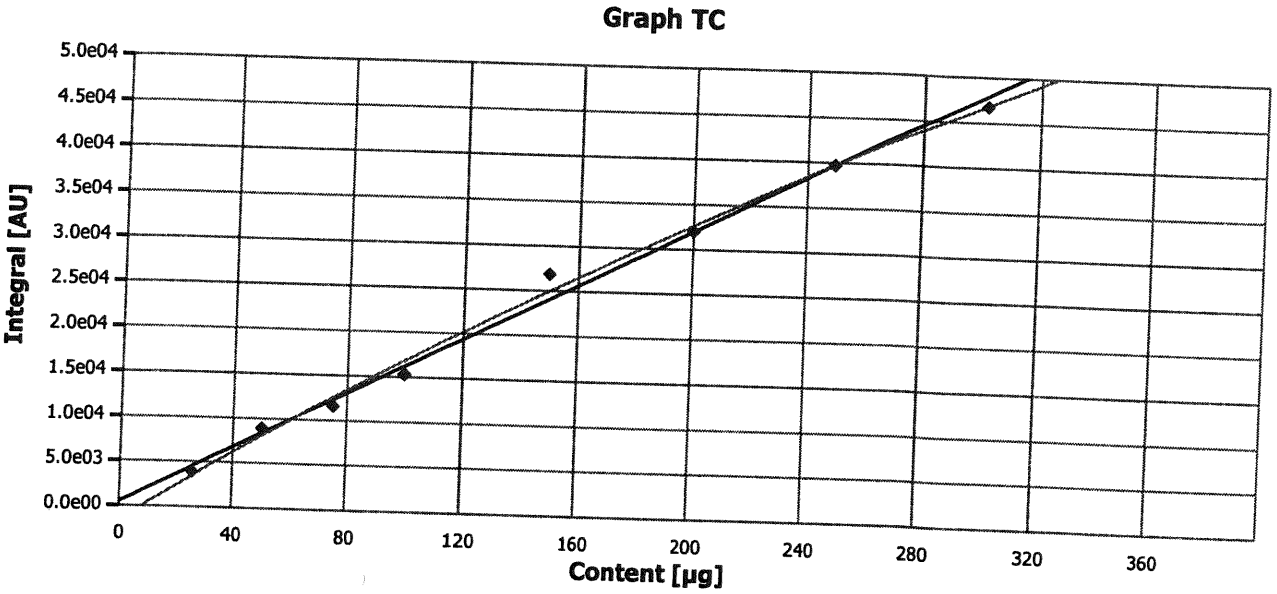
KHP (0.1% C) ID: 19-GEN-12-7-6

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1



Work Request # K2407891, K2407895

Date Analyzed: 8/5/24

Analyst: ARun

Run # 849463

Analysis: TOC soil PSEP

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	yes/no/(NA)
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

Final Approved by: RRM Date: 8/5/24

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849463 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407891-001	Carbon, Total Organic (TOC)	N/A		Soil	1.28 Percent	250.5 mg	1.28 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-002	Carbon, Total Organic (TOC)	N/A		Soil	0.80 Percent	250 mg	0.80 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-003	Carbon, Total Organic (TOC)	N/A		Soil	0.71 Percent	250.2 mg	0.71 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-004	Carbon, Total Organic (TOC)	N/A		Soil	0.74 Percent	250.1 mg	0.74 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-005	Carbon, Total Organic (TOC)	N/A		Soil	0.79 Percent	250 mg	0.79 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-006	Carbon, Total Organic (TOC)	N/A		Soil	0.34 Percent	250.2 mg	0.34 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-008	Carbon, Total Organic (TOC)	N/A		Soil	0.34 Percent	250 mg	0.34 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-009	Carbon, Total Organic (TOC)	N/A		Soil	1.38 Percent	250.5 mg	1.38 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407891-010	Carbon, Total Organic (TOC)	N/A		Soil	2.03 Percent	250.7 mg	2.03 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407895-010	Carbon, Total Organic (TOC)	N/A		Soil	0.56 Percent	250.3 mg	0.56 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407895-011	Carbon, Total Organic (TOC)	N/A		Soil	0.42 Percent	250 mg	0.42 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
K2407895-012	Carbon, Total Organic (TOC)	N/A		Soil	0.54 Percent	250.1 mg	0.54 Percent	1	0.005	0.10			8/5/24 12:06:49	N	IV
KQ2411984-01	Carbon, Total Organic (TOC)	DUP	K2407891-001	Soil	1.28 Percent	250.4 mg	1.28 Percent	1	0.005	0.10		<1	8/5/24 12:06:49	N	IV
KQ2411984-02	Carbon, Total Organic (TOC)	TRP	K2407891-001	Soil	1.30 Percent	250.1 mg	1.30 Percent	1	0.005	0.10		<1	8/5/24 12:06:49	N	IV
KQ2411984-03	Carbon, Total Organic (TOC)	MS	K2407891-001	Soil	3.65 Percent	125 mg	3.65 Percent	1	0.005	0.10	99		8/5/24 12:06:49	N	IV
KQ2411984-04	Carbon, Total Organic (TOC)	DMS	K2407891-001	Soil	3.62 Percent	125 mg	3.62 Percent	1	0.005	0.10	97	2	8/5/24 12:06:49	N	IV
KQ2411984-05	Carbon, Total Organic (TOC)	LCS		Soil	3.22 Percent	250.2 mg	3.22 Percent	1	0.005	0.10	108		8/5/24 12:06:49	N	IV
KQ2411984-06	Carbon, Total Organic (TOC)	MB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV
KQ2411984-07	Carbon, Total Organic (TOC)	CCV		Soil	12.21 Percent	25 mg	12.2 Percent	1			102%		8/5/24 12:06:49	N	IV
KQ2411984-08	Carbon, Total Organic (TOC)	CCV		Soil	12.14 Percent	25.3 mg	12.1 Percent	1			101%		8/5/24 12:06:49	N	IV
KQ2411984-09	Carbon, Total Organic (TOC)	CCV		Soil	12.21 Percent	25 mg	12.2 Percent	1			102%		8/5/24 12:06:49	N	IV
KQ2411984-10	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV
KQ2411984-11	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

8/5/24

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 849463 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2411984-12	Carbon, Total Organic (TOC)	CCB		Soil	0.00 Percent	250 mg	0.10 Percent U	1	0.005	0.10			8/5/24 12:06:49	N	IV

AMcn 8/5/24

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

AnalysisGroup

AnalysisGroup: % TOC 2024E

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 7/12/2024 11:11:53 AM
Last modification: 8/5/2024 4:44:44 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.21% 102%	25.000mg	8/5/2024 12:06:49 PM	
CCB	TC: 0.00000%	250.000mg	8/5/2024 12:16:13 PM	TC: Out of the calibrated ranges
LCS	TC: 3.22% 108%	250.200mg	8/5/2024 12:23:59 PM	
MB	TC: 0.00000%	250.000mg	8/5/2024 12:34:43 PM	TC: Out of the calibrated ranges
K2407891-001	TC: 1.28%	250.500mg	8/5/2024 12:41:44 PM	
K2407891-001D	TC: 1.28%	250.400mg	8/5/2024 12:52:57 PM	
K2407891-001TR	TC: 1.30%	250.100mg	8/5/2024 1:04:20 PM	
K2407891-001MS	TC: 3.65%	125.000mg	8/5/2024 1:14:27 PM	
K2407891-001MSD	TC: 3.62%	125.000mg	8/5/2024 1:24:55 PM	
K2407891-002	TC: 0.80%	250.000mg	8/5/2024 1:35:06 PM	
K2407891-003	TC: 0.71%	250.200mg	8/5/2024 1:45:31 PM	
K2407891-004	TC: 0.74%	250.100mg	8/5/2024 1:55:21 PM	
CCV	TC: 12.14% 101%	25.300mg	8/5/2024 2:05:29 PM	
CCB	TC: 0.00000%	250.000mg	8/5/2024 2:14:57 PM	TC: Out of the calibrated ranges
K2407891-005	TC: 0.79%	250.000mg	8/5/2024 3:03:44 PM	
K2407891-006	TC: 0.34%	250.200mg	8/5/2024 3:14:24 PM	
K2407891-008	TC: 0.34%	250.000mg	8/5/2024 3:24:32 PM	
K2407891-009	TC: 1.38%	250.500mg	8/5/2024 3:33:36 PM	
K2407891-010	TC: 2.03%	250.700mg	8/5/2024 3:44:45 PM	
K2407895-010	TC: 0.56%	250.300mg	8/5/2024 3:56:00 PM	
K2407895-011	TC: 0.42%	250.000mg	8/5/2024 4:06:38 PM	
K2407895-012	TC: 0.54%	250.100mg	8/5/2024 4:16:55 PM	
CCV	TC: 12.21% 102%	25.000mg	8/5/2024 4:27:51 PM	
CCB	TC: 0.00000%	250.000mg	8/5/2024 4:37:03 PM	TC: Out of the calibrated ranges

AR 8/5/24

Service Request: K2407895

Date Weighed: 8/2/2024

Analyst: AEM

Method: 9060 TOC Modified

Analysis: Total Organic Carbon in Soil

Prep Run / Run # 442523/ 442536
849463

Sample Position	Sample ID	Weight (mg)
1	Clean	NA
2	CCV	25.0
3	CCB	250.0
4	LCS	250.2
5	MB	250.0
6	K2407891-001	250.5
7	K2407891-001D	250.4
8	K2407891-001TR	250.1
9	K2407891-001MS	125.0
10	K2407891-001MSD	125.0
11	K2407891-002	250.0
12	K2407891-003	250.2
13	K2407891-004	250.1
14	CCV	25.3
15	CCB	250.0
16	K2407891-005	250.0
17	K2407891-006	250.2
18	K2407891-008	250.0
19	K2407891-009	250.5
20	K2407891-010	250.7
21	K2407895-010	250.3
22	K2407895-011	250.0
23	K2407895-012	250.1
24	CCV	25.0

Sample Position	Sample ID	Weight (mg)
25	CCB	250.0
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		

AEM 8/5/24

MS CaCO3 (mg)	K2407891-001MS	25.0
MSD CaCO3 (mg)	K2407891-001MSD	25.1

Equipment: K-TOC-04

Calibration Expires: 3/14/25

Balance ID: K-BALANCE-38

HCL ID: 19-GEN-12-9-F, Exp: 1/29/25

Oven ID: K-OVEN-11

Thermometer ID: K-OVEN-11

CCV: CaCO3, JT Baker, ID: 19-GEN-13-71-A, Lot # 228036, Exp: 2/20/26, TV = 12.0 % C

LCS/SRM: NIST SRM, Lot # 1941b, Organics in Marine Sediment, ID: 19-GEN-13-97-J, Exp: 9/14/32, TV = 2.99 % TOC

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration QC Check

AnalysisGroup

AnalysisGroup: % TOC 2024b

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 2/23/2024 5:07:30 PM
Last modification: 3/15/2024 2:02:58 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
ICV - 25mg	TC: 11.81%	25.200mg	3/15/2024 12:12:46 PM	
ICV - 100mg	TC: 11.99%	100.300mg	3/15/2024 12:22:18 PM	
ICB	TC: 0.0014%	250.000mg	3/15/2024 12:32:34 PM	TC: Out of the calibrated ranges
CCV	TC: 11.85%	25.100mg	3/15/2024 12:41:07 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 12:50:16 PM	TC: Out of the calibrated ranges
LCS	TC: 3.14%	250.300mg	3/15/2024 12:58:11 PM	
DLCS	TC: 3.12%	250.300mg	3/15/2024 1:09:41 PM	
MB	TC: 0.0053%	250.000mg	3/15/2024 1:20:59 PM	TC: Out of the calibrated ranges
LOQ - 0.1% C	TC: 0.099%	253.300mg	3/15/2024 1:29:28 PM	
LOD - 0.01% C	TC: 0.014%	251.100mg	3/15/2024 1:37:55 PM	
CCV	TC: 11.90%	25.200mg	3/15/2024 1:46:25 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 1:55:32 PM	TC: Out of the calibrated ranges

ICV: 19-GEN-13-94-A (TV = 12% C)
CCV: 19-GEN-13-71-A (TV = 12% C)
LCS: 19-GEN-13-97-J (TV = 2.99% C / TOC)
LOQ: 19-GEN-12-7-G (TV = 0.1% C)
LOD: 19-GEN-12-7-H (TV = 0.01% C)

MB/LCS/DLCS → Acidified w/ 19-GEN-12-8-K

DAB 3/15/24

Method

Method: TOC by Manual Acidification - 3/14/24 **Version** 3

Created on: 3/14/2024 1:39:46 PM **of:** User
Last modification: 3/14/2024 5:28:48 PM **of:** User

Status: authorized
State: solid
Furnace: Ceramic tube (CS) - horizontal

Determinations:
Determinations: 1 - 1
Calculation algorithm: Conc_solid_EA4000_%
Operands:
Weight 1mg

Process:
FPG EA4000 (Default)
Furnace temperature 1100°C

Detection:

	TC
Detector	C_C201
Maximum integration time	600s
Stability	3
Start	0.12ppm
Threshold	5ppm

CalibrationData:

Calibration parameters TC		**[CR1]3,932AU - 47,966AU**	**[CR2]47,966AU - 3,627,304AU**
Type		Measurement	Measurement
Linked on		3/14/2024	3/14/2024
Name		Cal_TOC by Manual Acidification - 3/14/24_20240314_161842	Cal_TOC by Manual Acidification - 3/14/24_20240314_142421
Regression	**Type**	linear	linear
	K0	-3.118e+0	2.144e+1
	K1	6.357e-3	6.62e-3
Daily factor		1	1
	Type	Default	Default
	Date	3/14/2024	3/14/2024

Page 1 of 1

DMB 3/15/24

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1

Calibration of: 3/14/2024 2:34:16 PM **of:** User
Last modification: 3/14/2024 3:51:20 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.62e-3*I+2.144e+1
K0: 2.144e+1
K1: 6.62e-3
Calibration range: 42,076AU - 3,627,304AU

Residual standard deviation: 10,941AU
Method standard deviation: 72.44211
Method variation coefficient: 0.97368%
Quality of replicates: 0.99994
Correlation coefficient: 0.99997
Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 150.59µg
Identification limit: 301.18µg
Quantification limit: 560.69µg

Constant concentration: 12.00%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 2.500mg	48,075AU	13.59%	13.2%	0.000AU
2	1/1	Weight: 5.200mg	90,273AU	11.91%	-0.79%	0.000AU
3	1/1	Weight: 10.200mg	177,764AU	11.75%	-2.10%	0.000AU
4	1/1	Weight: 15.100mg	262,109AU	11.63%	-3.05%	0.000AU
5	1/1	Weight: 24.900mg	441,009AU	11.81%	-1.57%	0.000AU
6	1/1	Weight: 50.100mg	912,060AU	12.10%	0.79%	0.000AU
7	1/1	Weight: 99.900mg	1,812,969AU	12.04%	0.30%	0.000AU
8	1/1	Weight: 149.800mg	2,729,736AU	12.08%	0.65%	0.000AU
9	1/1	Weight: 200.300mg	3,610,903AU	11.95%	-0.45%	0.000AU

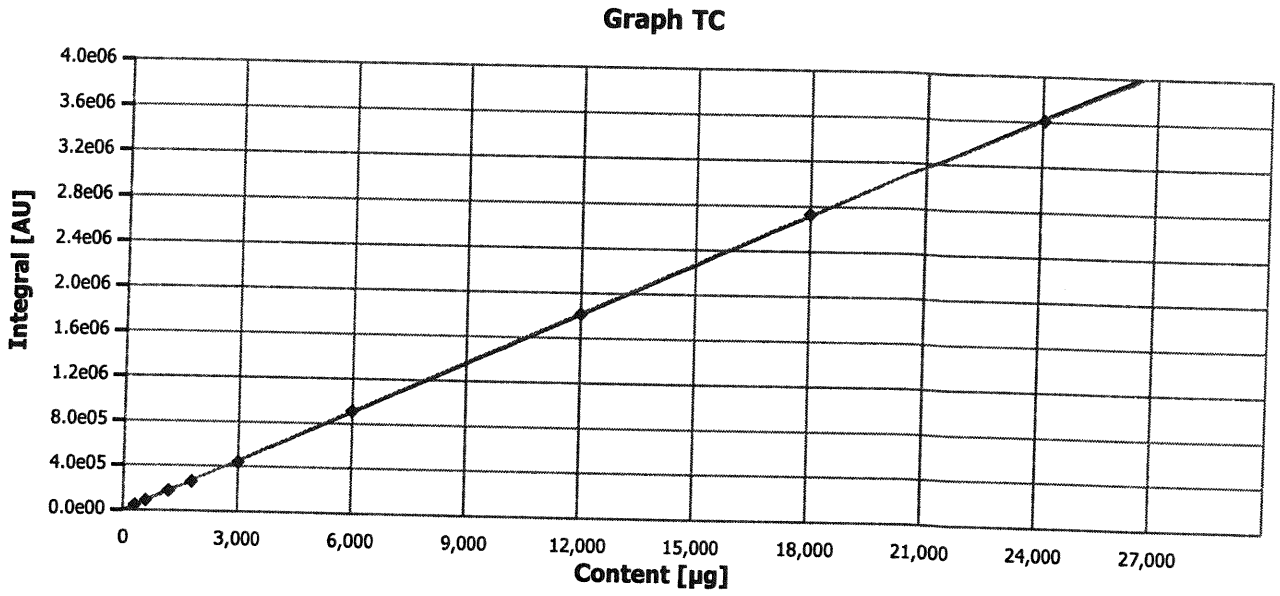
Calcium Carbonate ID: 19-GEN-13-71-A (TV=12% C)

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1



Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1

Calibration of: 3/14/2024 4:26:04 PM **of:** User
Last modification: 3/14/2024 5:27:01 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.357e-3*I-3.118e+0
K0: -3.118e+0
K1: 6.357e-3
Calibration range: 3,932AU - 47,966AU

Residual standard deviation: 1,350AU
Method standard deviation: 8.63664
Method variation coefficient: 5.99715%
Quality of replicates: 0.99354
Correlation coefficient: 0.99676

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 20.04µg
Identification limit: 40.09µg
Quantification limit: 69.61µg

Constant concentration: 0.100%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 25.400mg	3,932AU	0.086%	-13.9%	0.000AU
2	1/1	Weight: 50.300mg	8,913AU	0.11%	6.44%	0.000AU
3	1/1	Weight: 75.000mg	11,596AU	0.094%	-5.87%	0.000AU
4	1/1	Weight: 99.800mg	15,331AU	0.095%	-5.47%	0.000AU
5	1/1	Weight: 149.900mg	26,864AU	0.11%	11.8%	0.000AU
6	1/1	Weight: 200.100mg	32,001AU	0.10%	0.11%	0.000AU
7	1/1	Weight: 249.800mg	39,745AU	0.100%	-0.11%	0.000AU
8	1/1	Weight: 301.800mg	46,777AU	0.097%	-2.50%	0.000AU

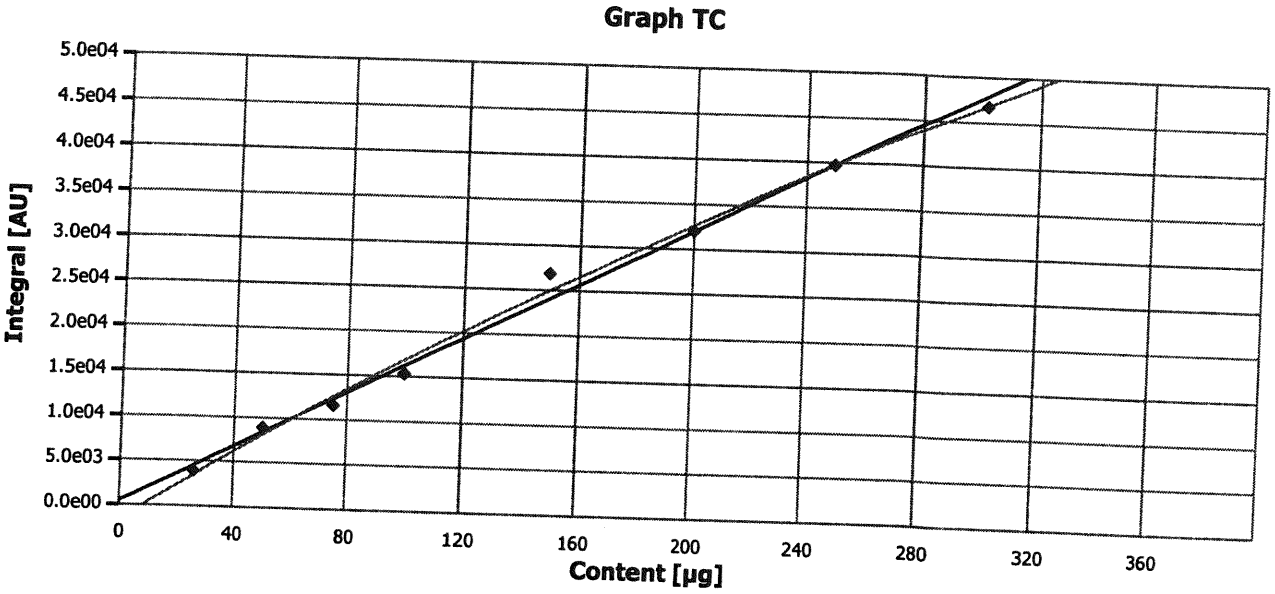
KHP (0.1% C) ID: 19-GEN-12-7-6

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 442521
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 8/8/24 09:32

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411912-05	MB		200.8/Metals T		Solid	1.0000g	100.00mL	10% HNO3 10% HCl
2	KQ2411912-06	LCS		200.8/Metals T		Solid	1.0000g	100.00mL	10% HNO3 10% HCl
3	K2407891-001	2024 KGMUSC S1	.04	200.8/Metals T		Soil	1.114g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
4	KQ2411912-01	K2407891-001 DUP	.04	200.8/Metals T		Solid	1.119g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
5	KQ2411912-02	K2407891-001 MS	.04	200.8/Metals T		Solid	1.111g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
6	K2407891-002	2024 KGMUSC S2	.04	200.8/Metals T		Soil	1.198g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
7	K2407891-003	2024 KGMUSC S3	.04	200.8/Metals T		Soil	1.125g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
8	K2407891-004	2024 KGMUSC SP2 S1	.04	200.8/Metals T		Soil	1.126g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
9	K2407891-005	2024 KGMUSC SP2 S2	.02	200.8/Metals T		Soil	1.151g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
10	K2407891-006	2024 KGMUSC SP2 S3	.04	200.8/Metals T		Soil	1.163g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
11	K2407891-007	2024 KGMLSH S3	.04	200.8/Metals T		Soil	1.107g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
12	K2407891-008	2024 KGMWFSC S1	.04	200.8/Metals T		Soil	1.114g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
13	K2407891-009	2024 KGMWFSC S2	.04	200.8/Metals T		Soil	1.138g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
14	K2407891-010	2024 KGMWFSC S3	.04	200.8/Metals T		Soil	1.241g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
15	K2407891-011	2024 KGM HJC S1	.04	200.8/Metals T		Soil	1.130g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
16	K2407891-012	2024 KGM HJC S2	.04	200.8/Metals T		Soil	1.153g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
17	K2407891-013	2024 KGM HJC S3	.04	200.8/Metals T		Soil	1.190g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
18	K2407891-014	2024 KGMLSH S2	.04	200.8/Metals T		Soil	1.152g	100.00mL	ZBIBI k-balance-50 / 10% HNO3 10% HCl
19	KQ2411912-03	K2407891-014 DUP	.04	200.8/Metals T		Solid	1.124g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl
20	KQ2411912-04	K2407891-014 MS	.04	200.8/Metals T		Solid	1.183g	100.00mL	TRICKMAN K-BALANCE-55 / 10% HNO3 10% HCl

Spiking Solutions

Name:	Inventory ID	Logbook Ref:	Expires On:
K-MET SS1	234271	MET4-59-L	03/22/2025

KQ2411912-02 2.00mL KQ2411912-04 2.00mL KQ2411912-06 2.00mL

Name:	Inventory ID	Logbook Ref:	Expires On:
K-MET SS5	234384	MET4-60-I	09/30/2024

KQ2411912-02 1.00mL KQ2411912-04 1.00mL KQ2411912-06 1.00mL

Name:	Inventory ID	Logbook Ref:	Expires On:
K-MET SS3	234899	MET4-62-A	09/30/2024

KQ2411912-02 1.00mL KQ2411912-04 1.00mL KQ2411912-06 1.00mL

Name:	Inventory ID	Logbook Ref:	Expires On:
K-MET SS4	235720	MET4-67-G	10/20/2024

Preparation Information Benchsheet

Prep Run#: 442521
Team: Metals/CLUKKEN
Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B
Status: Prepped
Prep Date/Time: 8/8/24 09:32

KQ2411912-02 1.00mL KQ2411912-04 1.00mL KQ2411912-06 1.00mL

Preparation Materials

K-MET 100ml Centrifuge Tube	L223102601 (235884)	K-MET HCL	22K0862007 (233698)	K-MET H2O2	63230401 (236526)
K-MET HNO3	23H1462003 (236022)	K-METPTFE Boiling chips	29036769 (234578)		

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/8/24 09:32	Started:	8/8/24 09:32
Finished:	8/8/24 13:39	Finished:	8/8/24 13:39
By:	CLUKKEN	By:	CLUKKEN
Comments		Comments	

Preparation Equipment

K-BlockDigester-04	Digestion	IR Thermometer ID: IR03		K-BlockDigester-04	Digestion	Temperature	94.7 deg C
K-BlockDigester-04	Digestion	Temperature Check Location	21	K-DGV 100-1000B	Digestion		
K-DGV 1000-5000	Digestion						

Comments: R1 15 min R2 120 min R3 15 min

Reviewed By: _____ Date: 8.9.24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1 *** Add after HNO3 and before ALS-89 when making the solution	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
	Mn	100*	1000ml	50	
	Ni	100*	1000ml	50	
	Sb***	50.0	1000ml	50	
	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 442521
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Draft
Prep Date/Time: 8/1/24 10:51 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	KQ2411912-05	MB			200.8 / Metals T	Solid						
2	KQ2411912-06	LCS			200.8 / Metals T	Solid						
3	K2407891-001	2024 KGMUSC S1	.04		200.8 / Metals T	Soil						
4	KQ2411912-01	K2407891-001 DUP	.04		200.8 / Metals T	Solid						
5	KQ2411912-02	K2407891-001 MS	.04		200.8 / Metals T	Solid						
6	K2407891-002	2024 KGMUSC S2	.04		200.8 / Metals T	Soil						
7	K2407891-003	2024 KGMUSC S3	.04		200.8 / Metals T	Soil						
8	K2407891-004	2024 KGMUSC SP2 S1	.04		200.8 / Metals T	Soil						
9	K2407891-005	2024 KGMUSC SP2 S2	.02		200.8 / Metals T	Soil						
10	K2407891-006	2024 KGMUSC SP2 S3	.04		200.8 / Metals T	Soil						
11	K2407891-007	2024 KGMLSH S3	.04		200.8 / Metals T	Soil						
12	K2407891-008	2024 KGMWFSC S1	.04		200.8 / Metals T	Soil						
13	K2407891-009	2024 KGMWFSC S2	.04		200.8 / Metals T	Soil						
14	K2407891-010	2024 KGMWFSC S3	.04		200.8 / Metals T	Soil						
15	K2407891-011	2024 KGM HJC S1	.04		200.8 / Metals T	Soil						
16	K2407891-012	2024 KGM HJC S2	.04		200.8 / Metals T	Soil						
17	K2407891-013	2024 KGM HJC S3	.04		200.8 / Metals T	Soil						
18	K2407891-014	2024 KGMLSH S2	.04		200.8 / Metals T	Soil						
19	KQ2411912-03	K2407891-014 DUP	.04		200.8 / Metals T	Solid						
20	KQ2411912-04	K2407891-014 MS	.04		200.8 / Metals T	Solid						

Comments: 2mL SS1, 1mL SS3, SS4 K-BD-4 94.7 TL 21
R1- 9:32-9:47 R2- 10:03-10:48 H_2O_2 - 11:50-13:05 R3-13:24-13:39

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442521 **Container Lot No:** 2206050 **Prep Due Date:** Aug-07-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407891-001	.04	Metals T : 200.8/	1.114g		ZBIBI k-balance-50
2	K2407891-001 DUP KQ2411912-01	.04	Metals T : 200.8/	1.119g		ZBIBI k-balance-50
3	K2407891-001 MS KQ2411912-02	.04	Metals T : 200.8/	1.111g		ZBIBI k-balance-50
4	K2407891-002	.04	Metals T : 200.8/	1.198g		ZBIBI k-balance-50
5	K2407891-003	.04	Metals T : 200.8/	1.125g		ZBIBI k-balance-50
6	K2407891-004	.04	Metals T : 200.8/	1.126g		ZBIBI k-balance-50
7	K2407891-005	.02	Metals T : 200.8/	1.151g		ZBIBI k-balance-50
8	K2407891-006	.04	Metals T : 200.8/	1.163g		ZBIBI k-balance-50
9	K2407891-007	.04	Metals T : 200.8/	1.107g		ZBIBI k-balance-50
10	K2407891-008	.04	Metals T : 200.8/	1.114g		ZBIBI k-balance-50
11	K2407891-009	.04	Metals T : 200.8/	1.138g		ZBIBI k-balance-50
12	K2407891-010	.04	Metals T : 200.8/	1.241g		ZBIBI k-balance-50
13	K2407891-011	.04	Metals T : 200.8/	1.130g		ZBIBI k-balance-50
14	K2407891-012	.04	Metals T : 200.8/	1.153g		ZBIBI k-balance-50
15	K2407891-013	.04	Metals T : 200.8/	1.190g		ZBIBI k-balance-50
16	K2407891-014	.04	Metals T : 200.8/	1.152g		ZBIBI k-balance-50
17	K2407891-014 DUP KQ2411912-03	.04	Metals T : 200.8/	1.124g		TRICKMAN K-BALANCE-55
18	K2407891-014 MS KQ2411912-04	.04	Metals T : 200.8/	1.183g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time: 8-6-24 07:00	Received By:	Date/Time: 8/8/24 9:32

Service Request # K2408064, K2408179, K2407895, K2407891,
Instrument ID # K-ICP-MS-05
Calibration 081424AICPMS05
ALS LIMS Run # 850554
Cal Std: MS34-18-E ICSA Std: MS34-16-H
ICV Std: MS34-18-F ICSAB Std: MS34-16-I
LLICV Std: MS34-12-B
I.S. Solution: MS33-40-A
EPA Tune Solution: MS33-39-E
Pipette IDs: 38480473, 42390072, 44183886

ICP-MS Data Review Form

	Yes	No	NA
1. Appropriate standardization completed	X		
2. ICV in control (+/- 10%)	X		
3. CCV's in control (+/- 10%)	X		
4. ICB/CCB's below MRL	X		
5. LLICV standard analyzed and in control	X		
6. ICS standards within 20% of true value			X
7. All analytes within instrument linear range	X		
8. Adequate rinse out time allowed	X		
9. Internal standards in control	X		
10. Interferences checked	X		
11. Was the run terminated? If so, why.		X	

See Benchsheet exception report for sample batch QC information.
Comments:

Prep Batch: 442765, 442913, 442535, 442521

Primary Review by JL Date 8/14/24

Secondary Review by RRM Date 8/15/24

Data Review Form

Instrument ID#: **K-ICP-MS-05**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-MS-05 (Agilent)\081424A.csv**
RUNNO: **850554**

K2407891

K2407891-001DUP - Metals T -
DUP RPD
200.8/Metals T - 52 Cr [He] - RPD: 34 Limit: 30
K2407891-001MS - Metals T -
MS Recovery
200.8/Metals T - 52 Cr [He] - Recovery: 255 Limits: 70 - 130
K2407891-014MS - Metals T -
MS Recovery
200.8/Metals T - 65 Cu [He] - Recovery: 53 Limits: 70 - 130

K2407895 Being redigested for Pb c. 16ppb in MB

K2407895-001DUP - Metals T -
DUP RPD
200.8/Metals T - 52 Cr [He] - RPD: 47 Limit: 30
K2407895-001MS - Metals T -
MS Recovery
200.8/Metals T - 52 Cr [He] - Recovery: 133 Limits: 70 - 130
K2407895-013DUP - Metals T -
DUP RPD
200.8/Metals T - 75 As [He] - RPD: 53 Limit: 30

K2408064

No exceptions to report.

K2408179

No exceptions to report.

Primary Approver: JC 8/15/24
Secondary Approver: RRM 8/15/24

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
1			001CALB.	2024-08-14 08:00:52	CalBlk		Prime		2
2			002CALB.	2024-08-14 08:03:29	CalBlk		Rinse		3
3			003CALB.	2024-08-14 08:06:04	CalBlk	1	Blank		3
4			004CALS.	2024-08-14 08:08:39	CalStd	2	25ppb		2
5			005_ICV.d	2024-08-14 08:13:17	ICV		ICV		1103
6			006_CCV.	2024-08-14 08:15:51	CCV		CCV		2
7			007_ICB.d	2024-08-14 08:18:25	ICB		ICB		3
8			008_CCB.	2024-08-14 08:21:01	CCB		CCB		3
9			009LICV.d	2024-08-14 08:23:37	LLICV		LLICVS		1104
10			010SMPL.	2024-08-14 08:26:12	Sample		MoSTD		1107
11			011_PB.d	2024-08-14 08:30:33	PB		KQ2412146-03	5X	2101
12			012_LCS.d	2024-08-14 08:33:08	LCS		KQ2412146-04	20X	2102
13			013_ARF.d	2024-08-14 08:35:42	AllRef		K2408064-001	5X	2103
14			014_Dup.d	2024-08-14 08:38:14	Dup		KQ2412146-01	5X	2104
15			015_Spk.d	2024-08-14 08:40:46	Spike		KQ2412146-02	5X	2105
16			016_CCV.	2024-08-14 08:44:12	CCV		CCV		2
17			017_CCB.	2024-08-14 08:52:02	CCB		CCB		3
18			018_PB.d	2024-08-14 08:54:37	PB		KQ2412305-03	5X	2201
19			019_LCS.d	2024-08-14 08:57:13	LCS		KQ2412305-04	20X	2202
20			020_ARF.d	2024-08-14 08:59:47	AllRef		K2408179-001	5X	2203
21			021_Dup.d	2024-08-14 09:02:21	Dup		KQ2412305-01	5X	2204
22			022_Spk.d	2024-08-14 09:04:55	Spike		KQ2412305-02	5X	2205
23			023SMPL.	2024-08-14 09:07:27	Sample		K2408179-002	5X	2206
24			024SMPL.	2024-08-14 09:10:00	Sample		K2408179-003	5X	2207
25			025_CCV.	2024-08-14 09:15:37	CCV		CCV		2
26			026_CCB.	2024-08-14 09:18:12	CCB		CCB		3
27			027_PB.d	2024-08-14 09:20:47	PB		KQ2411923-05	5X	2301
28			028_LCS.d	2024-08-14 09:23:23	LCS		KQ2411923-06	20X	2302
29			029_ARF.d	2024-08-14 09:25:57	AllRef		K2407895-001	5X	2303
30			030_Dup.d	2024-08-14 09:28:31	Dup		KQ2411923-01	5X	2304
31			031_Spk.d	2024-08-14 09:31:06	Spike		KQ2411923-02	5X	2305
32			032_ARF.d	2024-08-14 09:33:36	AllRef		K2407895-013	5X	2306
33			033_Dup.d	2024-08-14 09:36:10	Dup		KQ2411923-03	5X	2307
34			034_Spk.d	2024-08-14 09:38:44	Spike		KQ2411923-04	5X	2308
35			035SMPL.	2024-08-14 09:41:14	Sample		K2407895-002	5X	2309
36			036SMPL.	2024-08-14 09:43:48	Sample		K2407895-003	5X	2310
37			037_CCV.	2024-08-14 09:46:22	CCV		CCV		2
38			038_CCB.	2024-08-14 09:48:57	CCB		CCB		3
39			040_CCB.	2024-08-14 10:35:58	CCB		CCB		3

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	Sample								
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
40			041_CCB.	2024-08-14 10:39:26	CCB		CCB		3
41			042_PB.d	2024-08-14 10:42:01	PB		KQ2411923-05	5X	2301
42			043_LCS.d	2024-08-14 10:44:36	LCS		KQ2411923-06	20X	2302
43			044_ARF.d	2024-08-14 10:47:11	AllRef		K2407895-001	5X	2303
44			045_Dup.d	2024-08-14 10:49:45	Dup		KQ2411923-01	5X	2304
45			046_CCV.	2024-08-14 10:54:11	CCV		CCV		2
46			047_CCB.	2024-08-14 10:57:40	CCB		CCB		3
47			048_PB.d	2024-08-14 11:00:16	PB		KQ2411923-05	5X	2408
48			049SMPL.	2024-08-14 11:02:52	Sample		K2407895-004	5X	2311
49			050SMPL.	2024-08-14 11:05:27	Sample		K2407895-005	5X	2312
50			051SMPL.	2024-08-14 11:08:00	Sample		K2407895-006	5X	2401
51			052SMPL.	2024-08-14 11:10:35	Sample		K2407895-007	5X	2402
52			053SMPL.	2024-08-14 11:13:09	Sample		K2407895-008	5X	2403
53			054SMPL.	2024-08-14 11:15:43	Sample		K2407895-009	5X	2404
54			055SMPL.	2024-08-14 11:18:18	Sample		K2407895-010	5X	2405
55			056SMPL.	2024-08-14 11:20:52	Sample		K2407895-011	5X	2406
56			057SMPL.	2024-08-14 11:23:26	Sample		K2407895-012	5X	2407
57			058_CCV.	2024-08-14 11:26:01	CCV		CCV		2
58			059_CCB.	2024-08-14 11:28:36	CCB		CCB		3
59			060_PB.d	2024-08-14 11:31:11	PB		KQ2411912-05	5X	3101
60			061_LCS.d	2024-08-14 11:33:48	LCS		KQ2411912-06	20X	3102
61			062_ARF.d	2024-08-14 11:36:23	AllRef		K2407891-001	5X	3103
62			063_Dup.d	2024-08-14 11:38:58	Dup		KQ2411912-01	5X	3104
63			064_Spk.d	2024-08-14 11:41:32	Spike		KQ2411912-02	5X	3105
64			065_ARF.d	2024-08-14 11:44:02	AllRef		K2407891-014	5X	3106
65			066_Dup.d	2024-08-14 11:46:37	Dup		KQ2411912-03	5X	3107
66			067_Spk.d	2024-08-14 11:49:11	Spike		KQ2411912-04	5X	3108
67			068SMPL.	2024-08-14 11:51:42	Sample		K2407891-002	5X	3109
68			069SMPL.	2024-08-14 11:54:17	Sample		K2407891-003	5X	3110
69			070_CCV.	2024-08-14 11:57:24	CCV		CCV		2
70			071_CCB.	2024-08-14 11:59:58	CCB		CCB		3
71			072_PB.d	2024-08-14 12:06:43	PB		KQ2411912-05	5X	3101
72			073SMPL.	2024-08-14 12:09:19	Sample		K2407891-004	5X	3111
73			074SMPL.	2024-08-14 12:11:54	Sample		K2407891-005	5X	3112
74			075SMPL.	2024-08-14 12:14:29	Sample		K2407891-006	5X	3201
75			076SMPL.	2024-08-14 12:17:03	Sample		K2407891-007	5X	3202
76			077SMPL.	2024-08-14 12:19:39	Sample		K2407891-008	5X	3203
77			078SMPL.	2024-08-14 12:22:13	Sample		K2407891-009	5X	3204
78			079SMPL.	2024-08-14 12:24:48	Sample		K2407891-010	5X	3205

Sample

	Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
79		080SMPL.	2024-08-14 12:27:23	Sample		K2407891-011	5X	3206
80		081SMPL.	2024-08-14 12:29:58	Sample		K2407891-012	5X	3207
81		082_CCV.	2024-08-14 12:40:05	CCV		CCV		2
82		083_CCB.	2024-08-14 12:42:40	CCB		CCB		3
83		084SMPL.	2024-08-14 12:45:16	Sample		K2407891-013	5X	3208
84		085_CCV.	2024-08-14 12:53:17	CCV		CCV		2
85		086_CCB.	2024-08-14 12:55:52	CCB		CCB		3

Analyte

	Name	Mass	ISTD	Tune Mode	Conc.	Units	Replicate
1	Al	27	45	No Gas	0.1009	ug/l	3
2	Cr	52	72	He	-0.0037	ug/l	3
3	Cr	53	72	He	0.2260	ug/l	3
4	Ni	60	72	He	0.0032	ug/l	3
5	Ni	62	72	He	0.0032	ug/l	3
6	Cu	63	72	He	-0.0022	ug/l	3
7	Cu	65	72	He	-0.0050	ug/l	3
8	Zn	66	72	He	0.0347	ug/l	3
9	As	75	72	He	0.0188	ug/l	3
10	Se	77	72	H2	-0.7605	ug/l	3
11	Se	78	72	H2	0.0026	ug/l	3
12	Mo	95	115	He	0.0039	ug/l	3
13	Mo	98	115	He	0.0048	ug/l	3
14	Ag	107	115	He	0.0016	ug/l	3
15	Ag	109	115	He	0.0008	ug/l	3
16	Cd	111	115	He	0.0077	ug/l	3
17	Cd	114	115	He	0.0076	ug/l	3
18	[Pb]	206	175	He	0.0038	ug/l	3
19	[Pb]	207	175	He	0.0044	ug/l	3
20	Pb	208	175	He	0.0042	ug/l	3
21	Li	6		No Gas			3
22	Sc	45		No Gas			3
23	Sc	45		He			3
24	Ge	72		H2			3
25	Ge	72		He			3
26	In	115		He			3
27	Lu	175		He			3
28	Th	232		He			3

US EPA Tune Check Report

Operator Name	ALKLS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\081424.b
Acq. Date-Time	2024-08-14 06:53:12
Report Comment	ALS Tune
Instrument Name	G3281A JP13482848

[No Gas]

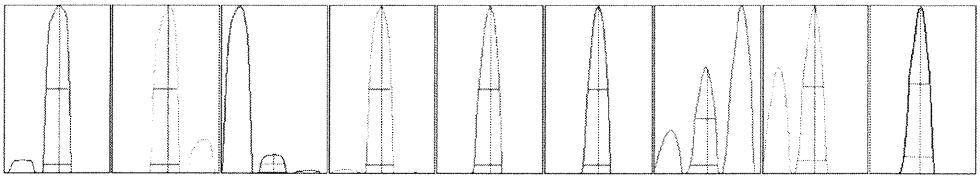
Sensitivity

Mass	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	83208.27	1.132	5.000	
9	23709.02	1.290	5.000	
24	165748.00	1.627	5.000	
59	385549.27	0.664	5.000	
115	627475.57	0.845	5.000	
140	672189.87	0.925	5.000	
208	331000.00	1.045	5.000	
209	521530.18	1.171	5.000	
238	673499.53	0.923	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	8213	8421	8378	8364	8228
9	2318	2384	2387	2394	2372
24	16109	16705	16798	16604	16658
59	38111	38732	38674	38695	38564
115	61960	62963	63260	63089	62466
140	66292	67729	67702	67496	66877
208	32538	33059	33148	33327	33428
209	51070	52361	52525	52479	52330
238	66243	67705	67553	67664	67584

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
7	13128.99	7.10	6.90 - 7.10		0.784		0.900
9	3811.60	9.10	8.90 - 9.10		0.783		0.900
24	26109.53	24.00	23.90 - 24.10		0.808		0.900

US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
59	63618.65	59.00	58.90 - 59.10		0.786		0.900
115	114566.61	115.05	114.90 - 115.10		0.776		0.900
140	125877.28	140.00	139.90 - 140.10		0.771		0.900
208	60819.80	208.00	207.90 - 208.10		0.780		0.900
209	96078.72	209.00	208.90 - 209.10		0.815		0.900
238	119556.59	237.95	237.90 - 238.10		0.838		0.900

Integration Time [sec]	0.1
Acquisition Time [sec]	268.4
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.57 L/min	Dilution Gas	0.50 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.76 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.9 V	Deflect	13.6 V
Extract 2	-175.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-75 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	126	Axis Gain	1.0004	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.08		

Hardware Settings

Torch

Torch H	0.0 mm	Torch V	0.8 mm		

EM

Discriminator	4.5 mV	Analog HV	1850 V	Pulse HV	1612 V

Calibration Blank Report

Sample Name	Blank
File Name	003CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:06:04
Sample Type	CalBlk
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	45	No Gas	7735.07	4.3
Se	77	72	H2	1560.74	4.2
Se	78	72	H2	25.67	23.8
Cr	52	72	He	730.02	4.6
Cr	53	72	He	352.23	8.0
Ni	60	72	He	136.67	23.3
Ni	62	72	He	25.56	71.8
Cu	63	72	He	263.34	19.0
Cu	65	72	He	142.22	17.6
Zn	66	72	He	115.56	24.0
As	75	72	He	17.33	29.6
Mo	95	115	He	27.78	30.2
Mo	98	115	He	35.56	14.3
Ag	107	115	He	32.22	12.0
Ag	109	115	He	23.33	57.2
Cd	111	115	He	3.33	45.8
Cd	114	115	He	24.50	5.4
[Pb]	206	175	He	125.56	18.1
[Pb]	207	175	He	88.89	12.1
Pb	208	175	He	461.12	7.2

3C
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QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	465634.11	1.1
Sc	45	No Gas	9033699.36	1.7
Ge	72	H2	2007352.98	1.7
Sc	45	He	207415.29	2.0
Ge	72	He	208403.74	0.5
In	115	He	2241849.28	1.8
Lu	175	He	5577447.69	1.4
Th	232	He	9174642.57	2.0

Calibration Standard Report

Sample Name	25ppb
File Name	004CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:08:39
Sample Type	CalStd
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	45	No Gas	5732541.02	0.7
Se	77	72	H2	10735.72	1.4
Se	78	72	H2	29283.40	1.2
Cr	52	72	He	151222.19	0.6
Cr	53	72	He	19127.25	1.2
Ni	60	72	He	81781.41	0.2
Ni	62	72	He	12986.07	1.5
Cu	63	72	He	242207.82	0.8
Cu	65	72	He	120941.44	1.0
Zn	66	72	He	32988.46	1.1
As	75	72	He	20837.67	1.3
Mo	95	115	He	58957.72	1.3
Mo	98	115	He	100626.02	0.5
Ag	107	115	He	222750.79	0.6
Ag	109	115	He	218174.40	1.1
Cd	111	115	He	53817.44	0.7
Cd	114	115	He	141541.19	1.0
[Pb]	206	175	He	338781.08	0.8
[Pb]	207	175	He	286439.78	0.6
Pb	208	175	He	1334837.85	0.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	460596.84	2.4	465634.11	98.92	
Sc	45	No Gas	8981443.53	0.6	9033699.36	99.42	
Ge	72	H2	1990120.82	1.6	2007352.98	99.14	
Sc	45	He	205124.46	1.0	207415.29	98.9	
Ge	72	He	205116.69	0.5	208403.74	98.42	
In	115	He	2247532.19	1.4	2241849.28	100.25	
Lu	175	He	5581296.72	0.8	5577447.69	100.07	
Th	232	He	9268454.65	1.7	9174642.57	101.02	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	005_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:13:17
Sample Type	ICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	106.0779	ug/l	3.6	2405012.75	106.08	
Se	77	72	H2	24.7269	ug/l	2.7	10759.40	98.91	
Se	78	72	H2	24.6792	ug/l	1.8	29252.03	98.72	
Cr	52	72	He	10.2213	ug/l	0.7	62324.58	102.21	
Cr	53	72	He	9.9302	ug/l	1.0	7815.15	99.3	
Ni	60	72	He	26.1448	ug/l	1.3	85614.40	104.58	
Ni	62	72	He	26.2152	ug/l	0.4	13632.14	104.86	
Cu	63	72	He	12.8905	ug/l	0.5	125154.48	103.12	
Cu	65	72	He	12.9535	ug/l	0.6	62804.13	103.63	
Zn	66	72	He	25.8937	ug/l	0.4	34200.74	103.57	
As	75	72	He	25.2590	ug/l	1.4	21076.30	101.04	
Mo	95	115	He	25.2605	ug/l	1.2	120371.54	101.04	
Mo	98	115	He	25.6771	ug/l	1.4	208825.20	102.71	
Ag	107	115	He	12.8170	ug/l	1.0	230795.14	102.54	
Ag	109	115	He	12.7686	ug/l	1.1	225220.69	102.15	
Cd	111	115	He	13.4097	ug/l	1.1	29169.81	107.28	
Cd	114	115	He	13.3726	ug/l	1.6	76509.75	106.98	
[Pb]	206	175	He	26.3755	ug/l	1.9	351620.38	105.5	
[Pb]	207	175	He	25.4898	ug/l	1.6	287332.80	101.96	
Pb	208	175	He	25.8808	ug/l	1.7	1359527.59	103.52	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	453067.26	0.7	465634.11	97.3	
Sc	45	No Gas	8861502.15	1.2	9033699.36	98.09	
Ge	72	H2	2013783.32	1.8	2007352.98	100.32	
Sc	45	He	204371.31	0.8	207415.29	98.53	
Ge	72	He	205347.02	0.8	208403.74	98.53	
In	115	He	2270802.35	0.6	2241849.28	101.29	
Lu	175	He	5491731.59	1.4	5577447.69	98.46	
Th	232	He	9149308.62	1.5	9174642.57	99.72	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 006_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:15:51

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	256.3226	ug/l	1.2	5846351.16	102.53	
Se	77	72	H2	24.7988	ug/l	1.0	11094.28	99.2	
Se	78	72	H2	24.5653	ug/l	1.0	29947.92	98.26	
Cr	52	72	He	25.2647	ug/l	0.5	158075.24	101.06	
Cr	53	72	He	24.4608	ug/l	2.5	19363.07	97.84	
Ni	60	72	He	24.9950	ug/l	2.1	84559.15	99.98	
Ni	62	72	He	25.1825	ug/l	3.2	13529.82	100.73	
Cu	63	72	He	24.8895	ug/l	2.2	249372.06	99.56	
Cu	65	72	He	25.1292	ug/l	2.2	125728.15	100.52	
Zn	66	72	He	25.0596	ug/l	0.3	34204.04	100.24	
As	75	72	He	24.5983	ug/l	1.4	21204.79	98.39	
Mo	95	115	He	12.3311	ug/l	0.7	59804.98	98.65	
Mo	98	115	He	12.4995	ug/l	1.0	103456.02	100	
Ag	107	115	He	12.4480	ug/l	0.8	228098.34	99.58	
Ag	109	115	He	12.5071	ug/l	1.0	224451.99	100.06	
Cd	111	115	He	25.0669	ug/l	0.5	55481.22	100.27	
Cd	114	115	He	24.8866	ug/l	0.7	144863.40	99.55	
[Pb]	206	175	He	24.4319	ug/l	1.0	337392.44	97.73	
[Pb]	207	175	He	24.4626	ug/l	0.8	285637.35	97.85	
Pb	208	175	He	24.5006	ug/l	0.4	1333217.21	98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	452435.30	1.7	465634.11	97.17	
Sc	45	No Gas	8931992.70	2.5	9033699.36	98.87	
Ge	72	H2	2070838.88	0.6	2007352.98	103.16	
Sc	45	He	209258.83	0.3	207415.29	100.89	
Ge	72	He	212173.64	1.7	208403.74	101.81	
In	115	He	2310607.84	1.0	2241849.28	103.07	
Lu	175	He	5687996.02	1.0	5577447.69	101.98	
Th	232	He	9186680.90	1.1	9174642.57	100.13	

Initial Calibration Blank (ICB) Report

Sample Name	ICB
File Name	007_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:18:25
Sample Type	ICB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0402	ug/l	12.2	8418.73	
Se	77	72	H2	-0.0080	ug/l	N/A	1556.07	
Se	78	72	H2	0.0141	ug/l	25.5	42.33	
Cr	52	72	He	-0.0092	ug/l	N/A	663.35	
Cr	53	72	He	0.0062	ug/l	1720.1	351.12	
Ni	60	72	He	0.0061	ug/l	67.6	154.45	
Ni	62	72	He	-0.0079	ug/l	N/A	21.11	
Cu	63	72	He	0.0062	ug/l	73.2	318.90	
Cu	65	72	He	-0.0039	ug/l	N/A	121.11	
Zn	66	72	He	-0.0047	ug/l	N/A	107.78	
As	75	72	He	0.0095	ug/l	55.9	25.00	
Mo	95	115	He	-0.0004	ug/l	N/A	25.56	
Mo	98	115	He	0.0023	ug/l	67.0	53.33	
Ag	107	115	He	0.0025	ug/l	42.5	75.56	
Ag	109	115	He	0.0022	ug/l	65.1	61.11	
Cd	111	115	He	0.0042	ug/l	31.6	12.17	
Cd	114	115	He	0.0050	ug/l	13.8	52.17	
[Pb]	206	175	He	0.0007	ug/l	64.5	134.44	
[Pb]	207	175	He	0.0040	ug/l	20.5	134.45	
Pb	208	175	He	0.0031	ug/l	53.4	621.12	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	445785.47	0.5	465634.11	95.74	
Sc	45	No Gas	8781763.82	0.5	9033699.36	97.21	
Ge	72	H2	2004431.24	1.1	2007352.98	99.85	
Sc	45	He	205248.28	2.3	207415.29	98.96	
Ge	72	He	205226.14	0.6	208403.74	98.48	
In	115	He	2210847.60	0.6	2241849.28	98.62	
Lu	175	He	5547486.72	1.4	5577447.69	99.46	
Th	232	He	9103055.28	1.9	9174642.57	99.22	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 008_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:21:01

Sample Type CCB

Comment —

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0210	ug/l	40.7	8068.54	
Se	77	72	H2	0.1480	ug/l	115.0	1172.38	
Se	78	72	H2	0.0085	ug/l	193.2	25.67	
Cr	52	72	He	0.0027	ug/l	384.7	651.13	
Cr	53	72	He	0.0200	ug/l	659.5	324.45	
Ni	60	72	He	0.0006	ug/l	572.7	121.11	
Ni	62	72	He	-0.0172	ug/l	N/A	14.44	
Cu	63	72	He	0.0021	ug/l	217.1	247.78	
Cu	65	72	He	-0.0001	ug/l	N/A	123.33	
Zn	66	72	He	-0.0222	ug/l	N/A	75.56	
As	75	72	He	0.0102	ug/l	142.7	22.33	
Mo	95	115	He	0.0041	ug/l	155.7	40.00	
Mo	98	115	He	0.0036	ug/l	85.8	56.67	
Ag	107	115	He	0.0012	ug/l	35.6	46.67	
Ag	109	115	He	0.0034	ug/l	60.9	72.22	
Cd	111	115	He	0.0026	ug/l	29.7	7.67	
Cd	114	115	He	0.0025	ug/l	33.7	33.50	
[Pb]	206	175	He	0.0008	ug/l	237.6	118.89	
[Pb]	207	175	He	0.0005	ug/l	484.8	83.33	
Pb	208	175	He	0.0009	ug/l	71.1	444.45	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	446390.00	0.8	465634.11	95.87	
Sc	45	No Gas	8867484.65	0.6	9033699.36	98.16	
Ge	72	H2	1456065.92	2.9	2007352.98	72.54	
Sc	45	He	179760.88	3.9	207415.29	86.67	
Ge	72	He	182174.03	5.6	208403.74	87.41	
In	115	He	1947950.98	5.2	2241849.28	86.89	
Lu	175	He	4893983.97	5.7	5577447.69	87.75	
Th	232	He	8114989.67	5.8	9174642.57	88.45	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name	LLICVS
File Name	009LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:23:37
Sample Type	LLICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	4.5748	ug/l	11.2	109366.77	114.37	
Se	77	72	H2	0.9053	ug/l	9.9	1913.78	-90.53	
Se	78	72	H2	0.9883	ug/l	5.0	1203.04	98.83	
Cr	52	72	He	0.4297	ug/l	2.3	3271.44	107.42	
Cr	53	72	He	0.4429	ug/l	25.3	672.24	110.72	
Ni	60	72	He	0.4386	ug/l	9.0	1551.20	109.65	
Ni	62	72	He	0.3694	ug/l	10.2	214.45	92.35	
Cu	63	72	He	0.2082	ug/l	9.5	2251.28	104.1	
Cu	65	72	He	0.2115	ug/l	2.7	1150.05	105.75	
Zn	66	72	He	1.1422	ug/l	7.5	1598.97	114.22	
As	75	72	He	0.4798	ug/l	16.0	412.34	95.96	
Mo	95	115	He	0.1009	ug/l	5.9	504.46	100.9	
Mo	98	115	He	0.1061	ug/l	7.0	892.25	106.1	
Ag	107	115	He	0.0427	ug/l	10.3	794.47	106.75	
Ag	109	115	He	0.0437	ug/l	7.6	787.80	109.25	
Cd	111	115	He	0.0447	ug/l	11.9	99.67	111.75	
Cd	114	115	He	0.0470	ug/l	3.4	291.33	117.5	
[Pb]	206	175	He	0.0994	ug/l	10.8	1435.64	99.4	
[Pb]	207	175	He	0.1078	ug/l	1.8	1291.18	107.8	
Pb	208	175	He	0.1013	ug/l	1.7	5722.69	101.3	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	450034.41	1.3	465634.11	96.65	
Sc	45	No Gas	8734431.60	1.8	9033699.36	96.69	
Ge	72	H2	2024798.39	0.2	2007352.98	100.87	
Sc	45	He	199355.25	0.6	207415.29	96.11	
Ge	72	He	203011.28	0.3	208403.74	97.41	
In	115	He	2252942.70	1.9	2241849.28	100.49	
Lu	175	He	5444965.48	1.1	5577447.69	97.62	
Th	232	He	9074236.74	1.6	9174642.57	98.91	

Sample Report

Sample Name	MoSTD
File Name	010SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:26:12
Sample Type	Sample
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	3.1176	ug/l	2.9	74570.57	
Se	77	72	H2	-0.1258	ug/l	N/A	1500.40	
Se	78	72	H2	-0.0067	ug/l	N/A	17.67	
Cr	52	72	He	0.0811	ug/l	23.3	1220.05	
Cr	53	72	He	-0.1700	ug/l	N/A	221.12	
Ni	60	72	He	0.1700	ug/l	5.0	696.69	
Ni	62	72	He	0.1256	ug/l	27.8	91.11	
Cu	63	72	He	0.0783	ug/l	0.8	1027.82	
Cu	65	72	He	0.0677	ug/l	4.9	472.23	
Zn	66	72	He	1.5622	ug/l	6.5	2190.16	
As	75	72	He	-0.0098	ug/l	N/A	9.00	
Mo	95	115	He	51.4037	ug/l	0.4	249941.47	
Mo	98	115	He	52.0411	ug/l	0.6	431881.94	
Ag	107	115	He	-0.0001	ug/l	N/A	32.22	
Ag	109	115	He	-0.0001	ug/l	N/A	22.22	
Cd	111	115	He	0.0064	ug/l	41.0	17.67	
Cd	114	115	He	0.0042	ug/l	29.8	49.67	
[Pb]	206	175	He	0.0087	ug/l	3.1	250.00	
[Pb]	207	175	He	0.0112	ug/l	31.0	222.22	
Pb	208	175	He	0.0101	ug/l	3.6	1027.80	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	436591.35	1.7	465634.11	93.76	
Sc	45	No Gas	8469428.00	0.5	9033699.36	93.75	
Ge	72	H2	1988314.92	2.1	2007352.98	99.05	
Sc	45	He	207701.72	0.7	207415.29	100.14	
Ge	72	He	207273.01	1.3	208403.74	99.46	
In	115	He	2317327.15	0.8	2241849.28	103.37	
Lu	175	He	5717240.89	1.2	5577447.69	102.51	
Th	232	He	9220568.61	1.9	9174642.57	100.5	

Prep Blank (PB) Report

Sample Name	KQ2412146-03
File Name	011_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:30:33
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.7808	ug/l	7.0	47640.56	
Se	77	72	H2	-0.1854	ug/l	N/A	1486.07	
Se	78	72	H2	-0.0036	ug/l	N/A	21.33	
Cr	52	72	He	0.1126	ug/l	27.8	1388.96	
Cr	53	72	He	0.0079	ug/l	50.2	351.12	
Ni	60	72	He	0.0606	ug/l	18.5	331.11	
Ni	62	72	He	0.0463	ug/l	80.9	48.89	
Cu	63	72	He	0.0384	ug/l	5.4	627.79	
Cu	65	72	He	0.0409	ug/l	26.4	336.67	
Zn	66	72	He	0.1635	ug/l	14.9	327.79	
As	75	72	He	-0.0024	ug/l	N/A	15.00	
Mo	95	115	He	0.0454	ug/l	29.2	244.45	
Mo	98	115	He	0.0443	ug/l	9.4	396.68	
Ag	107	115	He	-0.0002	ug/l	N/A	28.89	
Ag	109	115	He	0.0012	ug/l	77.0	45.56	
Cd	111	115	He	0.0002	ug/l	308.2	3.83	
Cd	114	115	He	0.1106	ug/l	3.7	657.34	Flag
[Pb]	206	175	He	0.0216	ug/l	9.9	421.12	
[Pb]	207	175	He	0.0253	ug/l	2.4	381.12	
Pb	208	175	He	0.0217	ug/l	4.5	1626.71	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	456644.39	0.7	465634.11	98.07	
Sc	45	No Gas	8833281.59	1.7	9033699.36	97.78	
Ge	72	H2	1997854.15	1.0	2007352.98	99.53	
Sc	45	He	206702.65	0.8	207415.29	99.66	
Ge	72	He	204280.48	1.4	208403.74	98.02	
In	115	He	2271812.17	1.2	2241849.28	101.34	
Lu	175	He	5614473.11	1.1	5577447.69	100.66	
Th	232	He	9109467.57	3.2	9174642.57	99.29	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2412146-04
File Name	012_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:33:08
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	210.8826	ug/l	4.1	4804330.23	200	105.44	
Se	77	72	H2	51.1679	ug/l	2.2	21085.35	50	102.34	
Se	78	72	H2	51.2738	ug/l	0.6	62206.86	50	102.55	
Cr	52	72	He	21.6095	ug/l	1.3	132770.89	20	108.05	
Cr	53	72	He	21.1305	ug/l	1.2	16462.33	20	105.65	
Ni	60	72	He	53.5940	ug/l	0.6	177785.81	50	107.19	
Ni	62	72	He	53.6800	ug/l	2.2	28273.24	50	107.36	
Cu	63	72	He	26.1350	ug/l	0.1	256980.87	25	104.54	
Cu	65	72	He	26.5215	ug/l	2.0	130213.17	25	106.09	
Zn	66	72	He	51.9210	ug/l	1.5	69408.58	50	103.84	
As	75	72	He	52.7879	ug/l	1.0	44636.03	50	105.58	
Mo	95	115	He	54.5383	ug/l	1.9	253789.62	50	109.08	
Mo	98	115	He	55.3058	ug/l	1.4	439276.13	50	110.61	
Ag	107	115	He	5.4914	ug/l	2.0	96594.20	5	109.83	
Ag	109	115	He	5.4666	ug/l	3.2	94178.69	5	109.33	
Cd	111	115	He	5.6430	ug/l	1.4	11991.15	5	112.86	
Cd	114	115	He	5.4008	ug/l	2.4	30193.70	5	108.02	
[Pb]	206	175	He	51.3111	ug/l	0.4	696846.31	50	102.62	
[Pb]	207	175	He	52.0651	ug/l	0.6	597880.88	50	104.13	
Pb	208	175	He	51.7760	ug/l	0.8	2770705.61	50	103.55	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	453857.05	1.6	465634.11	97.47	
Sc	45	No Gas	8923101.04	0.9	9033699.36	98.78	
Ge	72	H2	2061815.06	0.9	2007352.98	102.71	
Sc	45	He	205330.21	1.3	207415.29	98.99	
Ge	72	He	208184.72	0.3	208403.74	99.89	
In	115	He	2218042.71	1.1	2241849.28	98.94	
Lu	175	He	5594452.14	0.4	5577447.69	100.3	
Th	232	He	9179918.20	1.9	9174642.57	100.06	

Reference Sample Report

Sample Name	K2408064-001
File Name	013_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:35:42
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1441.9486	ug/l	4.9	34473309.74	
Se	77	72	H2	2.7755	ug/l	13.7	2506.19	
Se	78	72	H2	2.8895	ug/l	3.4	3326.66	
Cr	52	72	He	12.8429	ug/l	1.2	74261.31	
Cr	53	72	He	12.3914	ug/l	2.8	9186.94	
Ni	60	72	He	10.6302	ug/l	1.6	33162.99	
Ni	62	72	He	10.4051	ug/l	2.2	5157.48	
Cu	63	72	He	475.3805	ug/l	1.9	4378189.41	
Cu	65	72	He	489.0726	ug/l	1.6	2249040.05	
Zn	66	72	He	443.4032	ug/l	1.2	554923.75	
As	75	72	He	2.9575	ug/l	1.6	2360.17	
Mo	95	115	He	7.0918	ug/l	3.1	32469.21	
Mo	98	115	He	7.2027	ug/l	1.3	56283.15	
Ag	107	115	He	0.8551	ug/l	2.2	14815.58	
Ag	109	115	He	0.8760	ug/l	1.6	14858.96	
Cd	111	115	He	0.7344	ug/l	4.7	1537.07	
Cd	114	115	He	1.1365	ug/l	0.7	6267.02	
[Pb]	206	175	He	9.0262	ug/l	2.0	121540.00	
[Pb]	207	175	He	8.9441	ug/l	1.7	101827.11	
Pb	208	175	He	9.0043	ug/l	1.6	477741.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	471789.62	1.5	465634.11	101.32	
Sc	45	No Gas	9377025.74	1.1	9033699.36	103.8	
Ge	72	H2	1943618.19	2.3	2007352.98	96.82	
Sc	45	He	194107.46	2.0	207415.29	93.58	
Ge	72	He	195190.48	0.8	208403.74	93.66	
In	115	He	2181014.45	1.5	2241849.28	97.29	
Lu	175	He	5543473.25	1.7	5577447.69	99.39	
Th	232	He	9115649.86	2.3	9174642.57	99.36	

Duplicate Sample Report

Sample Name	KQ2412146-01
File Name	014_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:38:14
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	013_
Default Text	ARF ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	29487935.50	1374.9222	ug/l	6.9	4.76	
Se	77	H2	2307.16	2.4507	ug/l	16.2		< 5X MRL
Se	78	H2	2903.25	2.6098	ug/l	3.3		< 5X MRL
Cr	52	He	69308.73	12.3626	ug/l	1.7	3.81	
Cr	53	He	8489.90	11.7931	ug/l	5.0	4.95	
Ni	60	He	31131.40	10.2932	ug/l	0.4	3.22	
Ni	62	He	4637.33	9.6492	ug/l	1.8	7.54	
Cu	63	He	4007504.01	448.9155	ug/l	0.5	5.73	
Cu	65	He	2030683.04	455.5715	ug/l	0.3	7.09	
Zn	66	He	512984.02	422.8542	ug/l	0.3	4.74	
As	75	He	2180.48	2.8180	ug/l	1.4	4.83	
Mo	95	He	30158.21	6.7447	ug/l	2.4	5.02	
Mo	98	He	51566.87	6.7581	ug/l	2.3	6.37	
Ag	107	He	11236.08	0.6636	ug/l	1.1	25.22	Dup Fail
Ag	109	He	11172.72	0.6741	ug/l	1.9	26.06	Dup Fail
Cd	111	He	1420.06	0.6947	ug/l	3.1	5.55	
Cd	114	He	5822.69	1.0812	ug/l	2.2	4.98	
[Pb]	206	He	123307.12	9.3356	ug/l	0.9	3.37	
[Pb]	207	He	103994.05	9.3128	ug/l	1.0	4.04	
Pb	208	He	485260.27	9.3245	ug/l	1.1	3.49	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	418894.95	2.0	465634.11	89.96	59.55	125.44	
Sc	45	No Gas	8420879.94	3.2	9033699.36	93.22	59.55	125.44	
Ge	72	H2	1876346.52	2.0	2007352.98	93.47	59.55	125.44	
Sc	45	He	189308.13	0.4	207415.29	91.27	59.55	125.44	
Ge	72	He	189193.99	0.5	208403.74	90.78	59.55	125.44	
In	115	He	2129854.61	1.6	2241849.28	95	59.55	125.44	
Lu	175	He	5436832.84	0.7	5577447.69	97.48	59.55	125.44	
Th	232	He	9274637.78	1.0	9174642.57	101.09	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name	KQ2412146-02
File Name	015_Spk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:40:46
Sample Type	Spike
Comment	5X
ISTD Ref FileName	003CALB.d
QC Ref File Name	013_ ARF.
Default Text	ÁLKLS NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	2537.3638	ug/l	2.8	52896633.45	800	136.93	Flag
Se	77	H2	218.9950	ug/l	0.4	77309.06	200	108.11	
Se	78	H2	216.8110	ug/l	0.8	239197.01	200	106.96	
Cr	52	He	100.1605	ug/l	1.0	560567.88	80	109.15	
Cr	53	He	98.2701	ug/l	2.0	68868.20	80	107.35	
Ni	60	He	228.3498	ug/l	0.9	692603.90	200	108.86	
Ni	62	He	227.1104	ug/l	0.7	109356.82	200	108.35	
Cu	63	He	591.9140	ug/l	1.5	5319354.79	100	116.53	
Cu	65	He	604.0954	ug/l	0.9	2710720.17	100	115.02	
Zn	66	He	679.1141	ug/l	1.6	829292.15	200	117.86	
As	75	He	213.6792	ug/l	0.3	165254.18	200	105.36	
Mo	95	He	224.0261	ug/l	2.0	970860.38	200	108.47	
Mo	98	He	238.1225	ug/l	4.4	1760837.85	200	115.46	
Ag	107	He	20.9762	ug/l	1.6	343584.25	20	100.61	
Ag	109	He	20.9334	ug/l	2.4	335816.79	20	100.29	
Cd	111	He	22.8665	ug/l	2.2	45243.41	20	110.66	
Cd	114	He	22.2431	ug/l	2.4	115746.08	20	105.53	
[Pb]	206	He	233.9086	ug/l	2.7	2872062.80	200	112.44	
[Pb]	207	He	227.9127	ug/l	0.6	2366261.57	200	109.48	
Pb	208	He	228.1744	ug/l	0.5	11039491.09	200	109.59	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	331656.54	2.1	465634.11	71.23	
Sc	45	No Gas	8175135.79	0.2	9033699.36	90.5	
Ge	72	H2	1875522.56	0.7	2007352.98	93.43	
Sc	45	He	195195.04	0.3	207415.29	94.11	
Ge	72	He	190460.00	0.2	208403.74	91.39	
In	115	He	2066033.30	1.8	2241849.28	92.16	
Lu	175	He	5058809.11	0.6	5577447.69	90.7	
Th	232	He	8315063.83	0.9	9174642.57	90.63	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 016_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:44:12

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	257.7492	ug/l	2.7	5374471.17	103.1	
Se	77	72	H2	25.2351	ug/l	0.8	10845.12	100.94	
Se	78	72	H2	24.6009	ug/l	1.2	28883.08	98.4	
Cr	52	72	He	25.2711	ug/l	2.2	151863.95	101.08	
Cr	53	72	He	25.3953	ug/l	2.0	19300.83	101.58	
Ni	60	72	He	24.9606	ug/l	0.5	81141.95	99.84	
Ni	62	72	He	25.1105	ug/l	2.6	12958.29	100.44	
Cu	63	72	He	24.6397	ug/l	2.0	237168.83	98.56	
Cu	65	72	He	24.8530	ug/l	1.2	119466.22	99.41	
Zn	66	72	He	25.0991	ug/l	0.6	32909.29	100.4	
As	75	72	He	24.6456	ug/l	1.4	20409.82	98.58	
Mo	95	115	He	12.5004	ug/l	2.2	56941.86	100	
Mo	98	115	He	12.5664	ug/l	1.8	97697.65	100.53	
Ag	107	115	He	12.4862	ug/l	1.8	214908.51	99.89	
Ag	109	115	He	12.4595	ug/l	1.5	210039.42	99.68	
Cd	111	115	He	25.0334	ug/l	1.7	52042.82	100.13	
Cd	114	115	He	24.6859	ug/l	1.5	134974.27	98.74	
[Pb]	206	175	He	24.1188	ug/l	0.4	306626.93	96.48	
[Pb]	207	175	He	23.9340	ug/l	0.7	257276.61	95.74	
Pb	208	175	He	24.0818	ug/l	0.5	1206343.11	96.33	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	342013.70	1.0	465634.11	73.45	
Sc	45	No Gas	8168397.73	0.8	9033699.36	90.42	
Ge	72	H2	1994249.09	0.6	2007352.98	99.35	
Sc	45	He	204148.21	2.0	207415.29	98.42	
Ge	72	He	203826.14	1.6	208403.74	97.8	
In	115	He	2170597.11	1.5	2241849.28	96.82	
Lu	175	He	5236038.54	0.1	5577447.69	93.88	
Th	232	He	8453979.67	1.2	9174642.57	92.15	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 017_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 08:52:02

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0356	ug/l	21.7	8165.27	
Se	77	72	H2	0.7543	ug/l	22.9	1823.77	
Se	78	72	H2	0.0010	ug/l	325.6	26.67	
Cr	52	72	He	-0.0003	ug/l	N/A	710.02	
Cr	53	72	He	0.1843	ug/l	49.5	480.01	
Ni	60	72	He	-0.0031	ug/l	N/A	123.34	
Ni	62	72	He	-0.0054	ug/l	N/A	22.22	
Cu	63	72	He	0.0094	ug/l	7.5	346.68	
Cu	65	72	He	0.0110	ug/l	34.2	191.12	
Zn	66	72	He	0.0074	ug/l	204.9	122.22	
As	75	72	He	0.0171	ug/l	32.9	31.00	
Mo	95	115	He	0.0048	ug/l	30.9	48.89	
Mo	98	115	He	0.0054	ug/l	42.2	76.67	
Ag	107	115	He	0.0009	ug/l	93.6	46.67	
Ag	109	115	He	0.0001	ug/l	625.3	24.45	
Cd	111	115	He	0.0018	ug/l	57.7	7.00	
Cd	114	115	He	0.0016	ug/l	121.2	32.67	
[Pb]	206	175	He	0.0012	ug/l	78.3	132.22	
[Pb]	207	175	He	-0.0008	ug/l	N/A	74.44	
Pb	208	175	He	0.0006	ug/l	100.2	462.23	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	368429.02	1.1	465634.11	79.12	
Sc	45	No Gas	8620881.05	1.6	9033699.36	95.43	
Ge	72	H2	1987748.32	1.0	2007352.98	99.02	
Sc	45	He	209061.55	0.2	207415.29	100.79	
Ge	72	He	203208.24	1.2	208403.74	97.51	
In	115	He	2171616.52	0.3	2241849.28	96.87	
Lu	175	He	5218106.60	2.9	5577447.69	93.56	
Th	232	He	8471836.96	1.0	9174642.57	92.34	

Prep Blank (PB) Report

Sample Name	KQ2412305-03
File Name	018_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:54:37
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.5148	ug/l	2.9	37593.30	
Se	77	72	H2	0.5405	ug/l	70.8	1314.06	
Se	78	72	H2	-0.0019	ug/l	N/A	17.67	
Cr	52	72	He	0.1622	ug/l	10.3	1495.63	
Cr	53	72	He	0.2873	ug/l	11.1	495.57	
Ni	60	72	He	0.0653	ug/l	2.9	306.67	
Ni	62	72	He	0.0545	ug/l	62.5	46.67	
Cu	63	72	He	0.0455	ug/l	29.1	617.79	
Cu	65	72	He	0.0337	ug/l	15.6	267.78	
Zn	66	72	He	0.8586	ug/l	6.3	1096.71	
As	75	72	He	0.0102	ug/l	82.7	22.33	
Mo	95	115	He	0.0209	ug/l	20.2	111.11	
Mo	98	115	He	0.0222	ug/l	5.4	187.78	
Ag	107	115	He	0.0004	ug/l	79.3	34.45	
Ag	109	115	He	0.0007	ug/l	45.8	31.11	
Cd	111	115	He	0.0016	ug/l	123.7	6.00	
Cd	114	115	He	0.1116	ug/l	3.4	575.34	Flag
[Pb]	206	175	He	0.0220	ug/l	12.3	358.90	
[Pb]	207	175	He	0.0280	ug/l	10.3	345.56	
Pb	208	175	He	0.0244	ug/l	2.6	1488.93	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	342779.94	10.0	465634.11	73.62	
Sc	45	No Gas	7979988.57	10.0	9033699.36	88.34	
Ge	72	H2	1500467.92	4.7	2007352.98	74.75	
Sc	45	He	183461.54	4.2	207415.29	88.45	
Ge	72	He	180934.06	4.5	208403.74	86.82	
In	115	He	1969862.26	4.6	2241849.28	87.87	
Lu	175	He	4714571.76	3.3	5577447.69	84.53	
Th	232	He	7516074.89	4.6	9174642.57	81.92	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2412305-04
File Name	019_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:57:13
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	220.9047	ug/l	4.7	4931143.00	200	110.45	
Se	77	72	H2	53.9771	ug/l	1.5	22205.09	50	107.95	
Se	78	72	H2	52.3459	ug/l	2.5	63645.11	50	104.69	
Cr	52	72	He	22.2322	ug/l	0.4	136609.91	20	111.16	
Cr	53	72	He	21.8843	ug/l	2.7	17042.89	20	109.42	
Ni	60	72	He	55.1473	ug/l	0.5	182980.20	50	110.29	
Ni	62	72	He	54.3338	ug/l	0.4	28623.79	50	108.67	
Cu	63	72	He	26.8594	ug/l	1.0	264164.80	25	107.44	
Cu	65	72	He	26.9191	ug/l	1.6	132202.04	25	107.68	
Zn	66	72	He	52.8402	ug/l	2.2	70653.54	50	105.68	
As	75	72	He	54.0747	ug/l	0.3	45735.55	50	108.15	
Mo	95	115	He	0.0087	ug/l	23.6	67.78	50	0.02	LCS Main CR1 Failed
Mo	98	115	He	0.0105	ug/l	26.8	118.89	50	0.02	LCS Main CR1 Failed
Ag	107	115	He	5.4517	ug/l	0.9	95866.87	5	109.03	
Ag	109	115	He	5.4961	ug/l	1.3	94653.59	5	109.92	
Cd	111	115	He	5.6571	ug/l	1.2	12014.34	5	113.14	
Cd	114	115	He	5.3928	ug/l	1.8	30133.59	5	107.86	
[Pb]	206	175	He	52.1719	ug/l	1.9	668252.30	50	104.34	
[Pb]	207	175	He	52.4263	ug/l	2.0	567800.55	50	104.85	
Pb	208	175	He	52.5097	ug/l	1.6	2650229.77	50	105.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	372323.98	1.8	465634.11	79.96	
Sc	45	No Gas	8747378.26	2.9	9033699.36	96.83	
Ge	72	H2	2066579.57	1.0	2007352.98	102.95	
Sc	45	He	209614.02	0.8	207415.29	101.06	
Ge	72	He	208236.59	0.7	208403.74	99.92	
In	115	He	2216900.58	1.7	2241849.28	98.89	
Lu	175	He	5276831.04	0.6	5577447.69	94.61	
Th	232	He	8621230.29	2.6	9174642.57	93.97	

Reference Sample Report

Sample Name	K2408179-001
File Name	020_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 08:59:47
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	182.8260	ug/l	1.6	4191940.11	
Se	77	72	H2	0.8008	ug/l	25.5	1868.44	
Se	78	72	H2	0.3283	ug/l	2.9	415.68	
Cr	52	72	He	3.1525	ug/l	1.5	19138.39	
Cr	53	72	He	3.1123	ug/l	5.6	2607.99	
Ni	60	72	He	1.4596	ug/l	3.1	4761.81	
Ni	62	72	He	1.6751	ug/l	14.4	867.80	
Cu	63	72	He	32.1045	ug/l	0.5	302151.07	
Cu	65	72	He	32.1022	ug/l	0.5	150868.06	
Zn	66	72	He	86.1235	ug/l	0.2	110152.53	
As	75	72	He	0.2455	ug/l	14.9	215.33	
Mo	95	115	He	0.8696	ug/l	1.4	3980.50	
Mo	98	115	He	0.9006	ug/l	4.9	7020.40	
Ag	107	115	He	0.2134	ug/l	1.3	3698.22	
Ag	109	115	He	0.2184	ug/l	6.7	3696.00	
Cd	111	115	He	0.0779	ug/l	9.3	165.00	
Cd	114	115	He	0.2728	ug/l	7.4	1513.26	
[Pb]	206	175	He	1.2260	ug/l	2.6	16292.01	
[Pb]	207	175	He	1.2080	ug/l	2.9	13559.36	
Pb	208	175	He	1.2092	ug/l	1.3	63304.29	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	382170.53	1.5	465634.11	82.08	
Sc	45	No Gas	8975296.03	0.8	9033699.36	99.35	
Ge	72	H2	2018838.18	1.7	2007352.98	100.57	
Sc	45	He	205427.84	0.4	207415.29	99.04	
Ge	72	He	199307.58	0.7	208403.74	95.64	
In	115	He	2167411.75	1.9	2241849.28	96.68	
Lu	175	He	5435753.26	1.7	5577447.69	97.46	
Th	232	He	8659558.20	1.8	9174642.57	94.39	

Duplicate Sample Report

Sample Name	KQ2412305-01
File Name	021_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:02:21
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	020_
Default Text	ARF ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	4100341.78	182.3643	ug/l	12.1	0.25	
Se	77	H2	1801.44	0.7062	ug/l	23.3		< 5X MRL
Se	78	H2	373.00	0.2979	ug/l	11.1		< 5X MRL
Cr	52	He	19037.18	3.1471	ug/l	2.6	0.17	
Cr	53	He	2404.63	2.8453	ug/l	4.4	8.96	
Ni	60	He	4821.81	1.4839	ug/l	1.0		< 5X MRL
Ni	62	He	796.69	1.5383	ug/l	2.6		< 5X MRL
Cu	63	He	192815.85	20.5535	ug/l	1.6	43.87	Dup Fail
Cu	65	He	96574.93	20.6162	ug/l	1.6	43.57	Dup Fail
Zn	66	He	100070.78	78.5205	ug/l	1.0	9.24	
As	75	He	184.33	0.2081	ug/l	6.6		< 5X MRL
Mo	95	He	3763.78	0.8269	ug/l	3.3	5.03	
Mo	98	He	6433.51	0.8294	ug/l	2.4	8.23	
Ag	107	He	3410.38	0.1981	ug/l	10.5	7.43	
Ag	109	He	3428.16	0.2036	ug/l	3.9	7.01	
Cd	111	He	124.50	0.0588	ug/l	6.3		< 5X MRL
Cd	114	He	1147.04	0.2070	ug/l	2.8	27.39	Dup Fail
[Pb]	206	He	13533.81	1.0445	ug/l	0.1	15.98	
[Pb]	207	He	11370.91	1.0395	ug/l	1.4	15	
Pb	208	He	53129.48	1.0413	ug/l	1.1	14.92	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	379931.51	1.9	465634.11	81.59	59.55	125.44	
Sc	45	No Gas	8798184.09	0.6	9033699.36	97.39	59.55	125.44	
Ge	72	H2	1983212.07	0.5	2007352.98	98.8	59.55	125.44	
Sc	45	He	200633.68	0.6	207415.29	96.73	59.55	125.44	
Ge	72	He	198583.22	1.1	208403.74	95.29	59.55	125.44	
In	115	He	2155190.53	2.7	2241849.28	96.13	59.55	125.44	
Lu	175	He	5291453.40	1.7	5577447.69	94.87	59.55	125.44	
Th	232	He	8742469.87	1.8	9174642.57	95.29	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2412305-02

File Name 022_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:04:55

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 020_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	989.4168	ug/l	4.6	21861881.91	800	100.82	
Se	77	H2	210.2281	ug/l	1.4	76780.67	200	104.71	
Se	78	H2	207.4951	ug/l	1.9	236643.28	200	103.58	
Cr	52	He	88.8083	ug/l	0.9	514975.35	80	107.07	
Cr	53	He	86.5131	ug/l	0.2	62846.63	80	104.25	
Ni	60	He	212.0445	ug/l	1.0	666259.30	200	105.29	
Ni	62	He	211.3294	ug/l	0.7	105412.29	200	104.83	
Cu	63	He	122.6132	ug/l	0.7	1141658.29	100	90.51	
Cu	65	He	124.0608	ug/l	1.6	576766.35	100	91.96	
Zn	66	He	277.5806	ug/l	0.9	351207.22	200	95.73	
As	75	He	209.8202	ug/l	0.5	168097.29	200	104.79	
Mo	95	He	0.7736	ug/l	1.7	3533.73	200	-0.05	Flag
Mo	98	He	0.7307	ug/l	2.7	5689.90	200	-0.08	Flag
Ag	107	He	18.9567	ug/l	0.6	324843.05	20	93.72	
Ag	109	He	19.0525	ug/l	2.1	319760.40	20	94.17	
Cd	111	He	21.3917	ug/l	0.9	44282.31	20	106.57	
Cd	114	He	20.7391	ug/l	0.9	112909.98	20	102.33	
[Pb]	206	He	211.4782	ug/l	2.4	2719735.72	200	105.13	
[Pb]	207	He	214.7299	ug/l	1.9	2335235.67	200	106.76	
Pb	208	He	214.0774	ug/l	1.5	10849375.75	200	106.43	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	373415.65	0.4	465634.11	80.2	
Sc	45	No Gas	8666719.65	1.5	9033699.36	95.94	
Ge	72	H2	1939235.89	2.0	2007352.98	96.61	
Sc	45	He	203051.03	1.8	207415.29	97.9	
Ge	72	He	197299.38	0.4	208403.74	94.67	
In	115	He	2161020.66	0.7	2241849.28	96.39	
Lu	175	He	5299832.71	1.6	5577447.69	95.02	
Th	232	He	8646359.04	1.4	9174642.57	94.24	

Sample Report

Sample Name	K2408179-002
File Name	023SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:07:27
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	257.3358	ug/l	55.5	5647431.58	
Se	77	72	H2	0.6078	ug/l	22.6	1724.09	
Se	78	72	H2	0.3381	ug/l	4.9	410.01	
Cr	52	72	He	2.5683	ug/l	1.7	15341.30	
Cr	53	72	He	2.2674	ug/l	2.6	1943.45	
Ni	60	72	He	1.2837	ug/l	3.0	4101.63	
Ni	62	72	He	1.3726	ug/l	12.8	698.91	
Cu	63	72	He	16.6816	ug/l	1.2	153303.92	
Cu	65	72	He	16.7529	ug/l	1.3	76890.93	
Zn	66	72	He	66.8018	ug/l	0.8	83390.07	
As	75	72	He	0.1865	ug/l	7.7	163.33	
Mo	95	115	He	0.6653	ug/l	5.1	3059.19	
Mo	98	115	He	0.6960	ug/l	1.9	5454.27	
Ag	107	115	He	0.8564	ug/l	2.7	14791.06	
Ag	109	115	He	0.8362	ug/l	2.4	14138.34	
Cd	111	115	He	0.0537	ug/l	12.6	114.83	
Cd	114	115	He	0.1922	ug/l	4.8	1075.54	
[Pb]	206	175	He	0.9718	ug/l	1.4	12611.88	
[Pb]	207	175	He	0.9975	ug/l	2.6	10928.37	
Pb	208	175	He	0.9740	ug/l	0.6	49775.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	377086.59	0.9	465634.11	80.98	
Sc	45	No Gas	8610226.60	0.6	9033699.36	95.31	
Ge	72	H2	1937094.99	1.6	2007352.98	96.5	
Sc	45	He	200091.90	1.9	207415.29	96.47	
Ge	72	He	194479.58	1.1	208403.74	93.32	
In	115	He	2174497.70	2.9	2241849.28	97	
Lu	175	He	5296757.99	0.9	5577447.69	94.97	
Th	232	He	8666285.08	1.2	9174642.57	94.46	

Sample Report

Sample Name K2408179-003

File Name 024SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:10:00

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	132.2700	ug/l	6.7	2902881.83	
Se	77	72	H2	0.7542	ug/l	10.9	1776.76	
Se	78	72	H2	0.2744	ug/l	10.9	337.34	
Cr	52	72	He	2.6782	ug/l	1.6	16043.04	
Cr	53	72	He	2.5140	ug/l	4.9	2129.03	
Ni	60	72	He	1.0596	ug/l	2.7	3424.81	
Ni	62	72	He	1.1455	ug/l	15.1	590.01	
Cu	63	72	He	16.5860	ug/l	1.4	153148.29	
Cu	65	72	He	16.6485	ug/l	0.4	76768.43	
Zn	66	72	He	66.6288	ug/l	1.1	83565.62	
As	75	72	He	0.1770	ug/l	7.5	156.67	
Mo	95	115	He	0.6961	ug/l	2.1	3138.10	
Mo	98	115	He	0.7141	ug/l	3.8	5478.72	
Ag	107	115	He	0.1567	ug/l	5.1	2679.12	
Ag	109	115	He	0.1517	ug/l	5.6	2531.33	
Cd	111	115	He	0.0583	ug/l	9.9	122.00	
Cd	114	115	He	0.2032	ug/l	4.5	1113.54	
[Pb]	206	175	He	3.7075	ug/l	1.2	47830.42	
[Pb]	207	175	He	4.0208	ug/l	0.5	43839.86	
Pb	208	175	He	3.8594	ug/l	1.0	196133.59	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	375250.98	1.0	465634.11	80.59	
Sc	45	No Gas	8589933.83	1.4	9033699.36	95.09	
Ge	72	H2	1937210.41	1.0	2007352.98	96.51	
Sc	45	He	200794.31	0.5	207415.29	96.81	
Ge	72	He	195392.04	0.6	208403.74	93.76	
In	115	He	2130167.99	1.6	2241849.28	95.02	
Lu	175	He	5302437.84	1.6	5577447.69	95.07	
Th	232	He	8680319.45	2.5	9174642.57	94.61	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	025_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:15:37
Sample Type	CCV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	258.4631	ug/l	3.1	5642645.47	103.39	
Se	77	72	H2	25.4354	ug/l	1.2	10948.52	101.74	
Se	78	72	H2	24.6556	ug/l	2.3	29019.28	98.62	
Cr	52	72	He	25.7406	ug/l	1.9	154931.80	102.96	
Cr	53	72	He	25.1104	ug/l	1.7	19118.40	100.44	
Ni	60	72	He	24.8324	ug/l	1.7	80845.97	99.33	
Ni	62	72	He	25.0929	ug/l	2.1	12971.61	100.37	
Cu	63	72	He	24.8957	ug/l	1.6	240040.77	99.58	
Cu	65	72	He	25.0070	ug/l	1.8	120398.20	100.03	
Zn	66	72	He	24.7903	ug/l	2.9	32549.75	99.16	
As	75	72	He	24.8002	ug/l	0.2	20576.36	99.2	
Mo	95	115	He	12.3441	ug/l	3.5	56752.24	98.75	
Mo	98	115	He	12.3444	ug/l	2.9	96868.02	98.76	
Ag	107	115	He	12.4021	ug/l	1.6	215494.60	99.22	
Ag	109	115	He	12.3928	ug/l	1.3	210916.51	99.14	
Cd	111	115	He	24.9222	ug/l	2.1	52301.79	99.69	
Cd	114	115	He	24.6143	ug/l	2.4	135848.62	98.46	
[Pb]	206	175	He	24.1248	ug/l	1.0	310092.65	96.5	
[Pb]	207	175	He	23.9766	ug/l	0.9	260570.76	95.91	
Pb	208	175	He	23.9758	ug/l	0.2	1214319.01	95.9	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	373133.60	0.6	465634.11	80.13	
Sc	45	No Gas	8552265.77	0.7	9033699.36	94.67	
Ge	72	H2	1999854.43	2.0	2007352.98	99.63	
Sc	45	He	204611.12	0.8	207415.29	98.65	
Ge	72	He	204177.45	2.1	208403.74	97.97	
In	115	He	2191614.55	2.7	2241849.28	97.76	
Lu	175	He	5294035.21	1.3	5577447.69	94.92	
Th	232	He	8612978.83	2.2	9174642.57	93.88	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 026_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:18:12

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0743	ug/l	18.5	9074.59	
Se	77	72	H2	0.5652	ug/l	32.2	1778.43	
Se	78	72	H2	0.0049	ug/l	85.0	31.67	
Cr	52	72	He	-0.0155	ug/l	N/A	612.24	
Cr	53	72	He	0.0050	ug/l	1080.7	343.34	
Ni	60	72	He	-0.0004	ug/l	N/A	131.11	
Ni	62	72	He	-0.0092	ug/l	N/A	20.00	
Cu	63	72	He	0.0012	ug/l	138.0	265.56	
Cu	65	72	He	0.0033	ug/l	236.6	153.33	
Zn	66	72	He	0.0006	ug/l	3524.6	112.22	
As	75	72	He	0.0086	ug/l	61.2	23.67	
Mo	95	115	He	0.0041	ug/l	111.9	45.56	
Mo	98	115	He	0.0023	ug/l	32.1	52.22	
Ag	107	115	He	0.0016	ug/l	94.4	58.89	
Ag	109	115	He	0.0021	ug/l	51.4	58.89	
Cd	111	115	He	0.0046	ug/l	9.3	12.83	
Cd	114	115	He	0.0042	ug/l	50.3	46.83	
[Pb]	206	175	He	0.0025	ug/l	128.2	150.00	
[Pb]	207	175	He	0.0011	ug/l	221.7	95.56	
Pb	208	175	He	0.0016	ug/l	78.4	516.68	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	381741.86	0.8	465634.11	81.98	
Sc	45	No Gas	8676201.88	1.0	9033699.36	96.04	
Ge	72	H2	2014744.99	1.7	2007352.98	100.37	
Sc	45	He	203054.51	2.6	207415.29	97.9	
Ge	72	He	201255.90	2.0	208403.74	96.57	
In	115	He	2171462.11	1.2	2241849.28	96.86	
Lu	175	He	5253254.38	1.3	5577447.69	94.19	
Th	232	He	8406662.16	1.8	9174642.57	91.63	

Prep Blank (PB) Report

Sample Name	KQ2411923-05
File Name	027_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:20:47
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.6039	ug/l	5.0	35806.74	
Se	77	72	H2	0.7883	ug/l	54.0	1405.06	
Se	78	72	H2	0.0085	ug/l	158.7	26.33	
Cr	52	72	He	0.0868	ug/l	5.5	1233.39	
Cr	53	72	He	0.0683	ug/l	86.5	395.56	
Ni	60	72	He	0.0564	ug/l	13.9	316.67	
Ni	62	72	He	0.0421	ug/l	120.6	46.67	
Cu	63	72	He	0.0342	ug/l	11.3	586.68	
Cu	65	72	He	0.0261	ug/l	13.6	264.45	
Zn	66	72	He	0.1389	ug/l	18.8	294.45	
As	75	72	He	0.0065	ug/l	22.9	22.33	
Mo	95	115	He	0.0229	ug/l	12.7	133.33	
Mo	98	115	He	0.0238	ug/l	27.4	223.33	
Ag	107	115	He	0.0004	ug/l	367.6	37.78	
Ag	109	115	He	0.0006	ug/l	27.5	33.33	
Cd	111	115	He	0.0016	ug/l	44.1	6.67	
Cd	114	115	He	0.1137	ug/l	3.5	658.01	Flag
[Pb]	206	175	He	0.1644	ug/l	7.6	2251.29	Flag
[Pb]	207	175	He	0.1553	ug/l	9.7	1785.67	Flag
Pb	208	175	He	0.1583	ug/l	3.2	8523.21	Flag

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	314746.81	12.1	465634.11	67.6	
Sc	45	No Gas	7225476.38	12.0	9033699.36	79.98	
Ge	72	H2	1536375.53	17.6	2007352.98	76.54	
Sc	45	He	206005.78	0.5	207415.29	99.32	
Ge	72	He	203824.96	0.5	208403.74	97.8	
In	115	He	2211613.21	1.6	2241849.28	98.65	
Lu	175	He	5340308.40	1.1	5577447.69	95.75	
Th	232	He	8560725.08	1.1	9174642.57	93.31	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411923-06
File Name	028_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:23:23
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	213.4223	ug/l	3.0	4848620.92	200	106.71	
Se	77	72	H2	52.6969	ug/l	1.0	21407.07	50	105.39	
Se	78	72	H2	51.8563	ug/l	1.0	62151.66	50	103.71	
Cr	52	72	He	21.6253	ug/l	2.1	132459.44	20	108.13	
Cr	53	72	He	21.0520	ug/l	1.6	16355.52	20	105.26	
Ni	60	72	He	53.0233	ug/l	0.9	175370.76	50	106.05	
Ni	62	72	He	52.2433	ug/l	1.7	27432.99	50	104.49	
Cu	63	72	He	25.8135	ug/l	1.2	253058.51	25	103.25	
Cu	65	72	He	25.8597	ug/l	0.9	126594.65	25	103.44	
Zn	66	72	He	50.8473	ug/l	1.3	67774.12	50	101.69	
As	75	72	He	51.7720	ug/l	1.6	43645.49	50	103.54	
Mo	95	115	He	53.1496	ug/l	0.4	246620.94	50	106.3	
Mo	98	115	He	53.5364	ug/l	0.3	423984.99	50	107.07	
Ag	107	115	He	5.2337	ug/l	0.8	91799.67	5	104.67	
Ag	109	115	He	5.2990	ug/l	0.6	91031.53	5	105.98	
Cd	111	115	He	5.3549	ug/l	0.9	11345.53	5	107.1	
Cd	114	115	He	5.1509	ug/l	0.3	28715.57	5	103.02	
[Pb]	206	175	He	49.6918	ug/l	1.1	638497.23	50	99.38	
[Pb]	207	175	He	50.3355	ug/l	0.7	546881.32	50	100.67	
Pb	208	175	He	50.1207	ug/l	1.3	2537502.07	50	100.24	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	391229.07	1.2	465634.11	84.02	
Sc	45	No Gas	8894220.20	1.8	9033699.36	98.46	
Ge	72	H2	2036989.64	1.5	2007352.98	101.48	
Sc	45	He	206884.52	0.9	207415.29	99.74	
Ge	72	He	207577.67	1.2	208403.74	99.6	
In	115	He	2211358.90	0.6	2241849.28	98.64	
Lu	175	He	5293378.12	1.2	5577447.69	94.91	
Th	232	He	8497365.08	1.9	9174642.57	92.62	

Reference Sample Report

Sample Name	K2407895-001
File Name	029_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:25:57
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	10781.0022	ug/l	4.6	248065030.14	
Se	77	72	H2	0.6804	ug/l	4.7	1844.77	
Se	78	72	H2	0.1319	ug/l	11.7	184.33	
Cr	52	72	He	18.6216	ug/l	1.9	112345.18	
Cr	53	72	He	18.1800	ug/l	2.7	13944.58	
Ni	60	72	He	13.8021	ug/l	1.2	45019.79	
Ni	62	72	He	13.5791	ug/l	1.9	7035.93	
Cu	63	72	He	57.5989	ug/l	1.4	555335.69	
Cu	65	72	He	57.5295	ug/l	1.4	276967.17	
Zn	66	72	He	43.8076	ug/l	2.2	57471.37	
As	75	72	He	1.8073	ug/l	4.6	1515.40	
Mo	95	115	He	1.2480	ug/l	3.4	5753.25	
Mo	98	115	He	1.2419	ug/l	3.1	9760.69	
Ag	107	115	He	0.0351	ug/l	8.4	640.02	
Ag	109	115	He	0.0338	ug/l	9.7	597.79	
Cd	111	115	He	0.1093	ug/l	4.6	232.33	
Cd	114	115	He	0.2069	ug/l	2.8	1163.71	
[Pb]	206	175	He	2.2632	ug/l	5.1	30139.45	
[Pb]	207	175	He	2.2491	ug/l	2.3	25321.97	
Pb	208	175	He	2.2463	ug/l	3.1	117885.98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	376335.91	0.8	465634.11	80.82	
Sc	45	No Gas	9024573.25	1.5	9033699.36	99.9	
Ge	72	H2	2041621.17	1.5	2007352.98	101.71	
Sc	45	He	212716.19	0.9	207415.29	102.56	
Ge	72	He	204264.76	1.0	208403.74	98.01	
In	115	He	2187222.68	1.1	2241849.28	97.56	
Lu	175	He	5469058.40	2.5	5577447.69	98.06	
Th	232	He	8754024.24	0.5	9174642.57	95.42	

Duplicate Sample Report

Sample Name	KQ2411923-01
File Name	030_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:28:31
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	029_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	283551686.51	11994.4474	ug/l	6.8	10.66	
Se	77	H2	1854.77	0.7886	ug/l	29.5		< 5X MRL
Se	78	H2	375.67	0.2962	ug/l	4.6		< 5X MRL
Cr	52	He	187535.87	31.4299	ug/l	1.7	51.18	Dup Fail
Cr	53	He	23162.17	30.7672	ug/l	3.7	51.43	Dup Fail
Ni	60	He	62002.01	19.1866	ug/l	0.8	32.64	Dup Fail
Ni	62	He	9917.36	19.3251	ug/l	3.9	34.93	Dup Fail
Cu	63	He	687498.37	71.9203	ug/l	0.8	22.11	Dup Fail
Cu	65	He	343492.91	71.9641	ug/l	0.1	22.29	Dup Fail
Zn	66	He	66726.69	51.3070	ug/l	1.0	15.77	
As	75	He	2534.53	3.0618	ug/l	1.8		< 5X MRL
Mo	95	He	7216.05	1.5646	ug/l	1.8	22.52	Dup Fail
Mo	98	He	12443.58	1.5826	ug/l	4.6	24.13	Dup Fail
Ag	107	He	706.69	0.0389	ug/l	3.8		< 5X MRL
Ag	109	He	781.13	0.0446	ug/l	3.9		< 5X MRL
Cd	111	He	249.17	0.1173	ug/l	7.8		< 5X MRL
Cd	114	He	1234.55	0.2195	ug/l	1.5	5.92	
[Pb]	206	He	27526.77	2.0949	ug/l	1.3	7.72	
[Pb]	207	He	22346.22	2.0123	ug/l	1.2	11.11	
Pb	208	He	106104.08	2.0496	ug/l	0.6	9.16	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	382981.09	1.3	465634.11	82.25	59.55	125.44	
Sc	45	No Gas	9282890.74	3.0	9033699.36	102.76	59.55	125.44	
Ge	72	H2	2008948.18	1.7	2007352.98	100.08	59.55	125.44	
Sc	45	He	210517.15	1.6	207415.29	101.5	59.55	125.44	
Ge	72	He	202523.62	0.2	208403.74	97.18	59.55	125.44	
In	115	He	2189678.34	1.3	2241849.28	97.67	59.55	125.44	
Lu	175	He	5390618.40	1.4	5577447.69	96.65	59.55	125.44	
Th	232	He	8701334.87	1.8	9174642.57	94.84	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411923-02

File Name 031_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:31:06

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 029_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	13476.8285	ug/l	4.7	309507792.14	800	336.98	Flag
Se	77	H2	205.7878	ug/l	1.7	76247.65	200	102.55	
Se	78	H2	204.4235	ug/l	0.5	236450.86	200	102.15	
Cr	52	He	126.0627	ug/l	0.7	725816.32	80	134.3	Flag
Cr	53	He	124.5552	ug/l	1.3	89724.79	80	132.97	Flag
Ni	60	He	235.7635	ug/l	0.7	735813.39	200	110.98	
Ni	62	He	236.4153	ug/l	2.2	117148.74	200	111.42	
Cu	63	He	189.3196	ug/l	1.7	1751007.12	100	131.72	Flag
Cu	65	He	177.2240	ug/l	0.8	818407.60	100	119.69	
Zn	66	He	266.1841	ug/l	0.8	334524.52	200	111.19	
As	75	He	212.5268	ug/l	0.9	169117.70	200	105.36	
Mo	95	He	216.4464	ug/l	1.3	950925.86	200	107.6	
Mo	98	He	229.1050	ug/l	1.4	1717977.95	200	113.93	
Ag	107	He	20.4324	ug/l	1.1	339273.03	20	101.99	
Ag	109	He	20.5099	ug/l	1.7	333560.42	20	102.38	
Cd	111	He	21.8187	ug/l	1.0	43765.78	20	108.55	
Cd	114	He	22.0638	ug/l	1.5	116396.44	20	109.28	
[Pb]	206	He	221.8213	ug/l	2.0	2819901.70	200	109.78	
[Pb]	207	He	219.4726	ug/l	1.3	2359262.61	200	108.61	
Pb	208	He	220.0706	ug/l	0.8	11024329.77	200	108.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	382144.62	0.3	465634.11	82.07	
Sc	45	No Gas	9008682.97	1.1	9033699.36	99.72	
Ge	72	H2	1966307.22	0.8	2007352.98	97.96	
Sc	45	He	202666.36	1.2	207415.29	97.71	
Ge	72	He	195979.96	0.9	208403.74	94.04	
In	115	He	2094078.06	0.8	2241849.28	93.41	
Lu	175	He	5237998.26	0.7	5577447.69	93.91	
Th	232	He	8608079.04	1.2	9174642.57	93.82	

Reference Sample Report

Sample Name	K2407895-013
File Name	032_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:33:36
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	25850.7798	ug/l	3.5	586798358.90	
Se	77	72	H2	2.9143	ug/l	2.7	2498.52	
Se	78	72	H2	2.0649	ug/l	3.5	2329.17	
Cr	52	72	He	66.3224	ug/l	1.8	380073.40	
Cr	53	72	He	65.7479	ug/l	0.6	47266.50	
Ni	60	72	He	64.8387	ug/l	1.0	201351.79	
Ni	62	72	He	63.7626	ug/l	2.6	31442.09	
Cu	63	72	He	131.0776	ug/l	0.7	1205712.66	
Cu	65	72	He	132.0177	ug/l	0.5	606373.93	
Zn	66	72	He	197.4889	ug/l	0.4	246887.06	
As	75	72	He	70.3492	ug/l	0.4	55691.93	
Mo	95	115	He	9.4560	ug/l	0.8	42133.89	
Mo	98	115	He	9.5883	ug/l	0.4	72909.03	
Ag	107	115	He	0.1919	ug/l	3.4	3260.34	
Ag	109	115	He	0.1878	ug/l	3.2	3118.09	
Cd	111	115	He	0.4662	ug/l	5.6	951.03	
Cd	114	115	He	0.5418	ug/l	2.9	2919.43	
[Pb]	206	175	He	11.9974	ug/l	0.5	153146.13	
[Pb]	207	175	He	11.6800	ug/l	0.6	126046.98	
Pb	208	175	He	11.7542	ug/l	0.8	591151.31	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	383206.83	0.2	465634.11	82.3	
Sc	45	No Gas	8903581.03	1.7	9033699.36	98.56	
Ge	72	H2	1898573.88	2.0	2007352.98	94.58	
Sc	45	He	211128.31	0.6	207415.29	101.79	
Ge	72	He	194923.31	1.1	208403.74	93.53	
In	115	He	2122395.89	0.5	2241849.28	94.67	
Lu	175	He	5255143.82	1.3	5577447.69	94.22	
Th	232	He	8583168.21	1.5	9174642.57	93.55	

Duplicate Sample Report

Sample Name	KQ2411923-03
File Name	033_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:36:10
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	032_
Default Text	ARE ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	548270573.77	24210.8291	ug/l	3.6	6.55	
Se	77	H2	2227.82	2.0782	ug/l	12.5		< 5X MRL
Se	78	H2	1623.08	1.4174	ug/l	3.5		< 5X MRL
Cr	52	He	353282.63	61.7941	ug/l	2.1	7.07	
Cr	53	He	43581.31	60.7438	ug/l	1.1	7.91	
Ni	60	He	165828.73	53.5272	ug/l	1.9	19.11	
Ni	62	He	26682.97	54.2521	ug/l	2.3	16.12	
Cu	63	He	1001443.54	109.1400	ug/l	1.0	18.26	
Cu	65	He	502957.72	109.7725	ug/l	0.4	18.4	
Zn	66	He	210471.94	168.7657	ug/l	0.4	15.68	
As	75	He	31354.98	39.7000	ug/l	1.1	55.7	Dup Fail
Mo	95	He	17322.37	3.8958	ug/l	2.5	83.29	Dup Fail
Mo	98	He	29614.00	3.9035	ug/l	1.6	84.27	Dup Fail
Ag	107	He	3033.63	0.1789	ug/l	7.5		< 5X MRL
Ag	109	He	3099.21	0.1873	ug/l	5.3		< 5X MRL
Cd	111	He	782.35	0.3842	ug/l	3.0	19.27	
Cd	114	He	2628.38	0.4888	ug/l	1.5	10.29	
[Pb]	206	He	126820.70	9.7724	ug/l	0.3	20.44	Dup Fail
[Pb]	207	He	104890.45	9.5614	ug/l	2.4	19.95	
Pb	208	He	490628.14	9.5960	ug/l	1.5	20.22	Dup Fail

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	384415.61	1.5	465634.11	82.56	59.55	125.44	
Sc	45	No Gas	8881065.20	2.3	9033699.36	98.31	59.55	125.44	
Ge	72	H2	1917459.86	0.3	2007352.98	95.52	59.55	125.44	
Sc	45	He	204652.22	0.9	207415.29	98.67	59.55	125.44	
Ge	72	He	194439.44	1.2	208403.74	93.3	59.55	125.44	
In	115	He	2116466.11	1.7	2241849.28	94.41	59.55	125.44	
Lu	175	He	5341880.90	1.1	5577447.69	95.78	59.55	125.44	
Th	232	He	8461916.33	2.0	9174642.57	92.23	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411923-04

File Name 034_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:38:44

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 032_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	33972.8176	ug/l	3.8	779399933.47	800	1015.25	Flag
Se	77	H2	205.5088	ug/l	2.4	73580.39	200	101.3	
Se	78	H2	203.9612	ug/l	1.2	227984.86	200	100.95	
Cr	52	He	156.9008	ug/l	0.5	881777.81	80	113.22	
Cr	53	He	153.0944	ug/l	0.8	107602.15	80	109.18	
Ni	60	He	274.6814	ug/l	0.7	836921.53	200	104.92	
Ni	62	He	271.6772	ug/l	0.7	131412.42	200	103.96	
Cu	63	He	229.8125	ug/l	1.4	2074826.44	100	98.73	
Cu	65	He	215.3517	ug/l	0.7	970831.04	100	83.33	
Zn	66	He	422.0144	ug/l	0.9	517747.18	200	112.26	
As	75	He	258.5237	ug/l	1.2	200846.58	200	94.09	
Mo	95	He	213.8607	ug/l	0.9	933529.79	200	102.2	
Mo	98	He	236.9513	ug/l	1.2	1765371.32	200	113.68	
Ag	107	He	19.6485	ug/l	0.3	324158.26	20	97.28	
Ag	109	He	19.6658	ug/l	0.4	317792.34	20	97.39	
Cd	111	He	21.7614	ug/l	1.4	43368.96	20	106.48	
Cd	114	He	20.9062	ug/l	0.9	109581.49	20	101.82	
[Pb]	206	He	221.0428	ug/l	1.0	2755933.85	200	104.52	
[Pb]	207	He	221.9527	ug/l	0.9	2339934.14	200	105.14	
Pb	208	He	220.7302	ug/l	0.5	10843990.96	200	104.49	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	402892.89	0.6	465634.11	86.53	
Sc	45	No Gas	9001493.26	1.7	9033699.36	99.64	
Ge	72	H2	1900312.42	1.8	2007352.98	94.67	
Sc	45	He	204678.72	0.3	207415.29	98.68	
Ge	72	He	191333.36	0.4	208403.74	91.81	
In	115	He	2080528.29	0.5	2241849.28	92.8	
Lu	175	He	5136650.49	0.6	5577447.69	92.1	
Th	232	He	8438057.79	1.4	9174642.57	91.97	

Sample Report

Sample Name K2407895-002

File Name 035SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:41:14

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	12983.9721	ug/l	5.6	288950095.18	
Se	77	72	H2	0.8292	ug/l	14.2	1773.43	
Se	78	72	H2	0.2362	ug/l	14.2	289.00	
Cr	52	72	He	23.0969	ug/l	0.5	133102.12	
Cr	53	72	He	23.0301	ug/l	2.2	16804.85	
Ni	60	72	He	14.7952	ug/l	0.7	46143.79	
Ni	62	72	He	14.8632	ug/l	3.9	7362.73	
Cu	63	72	He	94.1286	ug/l	0.6	867780.26	
Cu	65	72	He	94.1339	ug/l	0.5	433323.60	
Zn	66	72	He	65.2040	ug/l	1.0	81759.22	
As	75	72	He	2.5915	ug/l	4.4	2071.46	
Mo	95	115	He	1.8446	ug/l	3.7	8302.12	
Mo	98	115	He	1.9021	ug/l	3.2	14594.20	
Ag	107	115	He	0.0504	ug/l	3.6	885.58	
Ag	109	115	He	0.0455	ug/l	11.8	776.69	
Cd	111	115	He	0.1286	ug/l	3.9	266.67	
Cd	114	115	He	0.2282	ug/l	2.3	1252.38	
[Pb]	206	175	He	2.5291	ug/l	1.4	32105.67	
[Pb]	207	175	He	2.4685	ug/l	1.5	26481.64	
Pb	208	175	He	2.4646	ug/l	1.3	123259.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	378270.62	1.2	465634.11	81.24	
Sc	45	No Gas	8734231.88	2.1	9033699.36	96.68	
Ge	72	H2	1904736.38	0.5	2007352.98	94.89	
Sc	45	He	200119.50	0.7	207415.29	96.48	
Ge	72	He	195333.64	0.3	208403.74	93.73	
In	115	He	2138239.99	1.5	2241849.28	95.38	
Lu	175	He	5211464.38	1.1	5577447.69	93.44	
Th	232	He	8639438.20	2.3	9174642.57	94.17	

Sample Report

Sample Name K2407895-003

File Name 036SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:43:48

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	15002.1115	ug/l	5.7	344460910.76	
Se	77	72	H2	0.5297	ug/l	20.6	1714.42	
Se	78	72	H2	0.1557	ug/l	9.6	204.33	
Cr	52	72	He	26.6430	ug/l	0.7	157032.79	
Cr	53	72	He	25.8205	ug/l	2.3	19241.88	
Ni	60	72	He	18.0190	ug/l	0.8	57487.55	
Ni	62	72	He	17.8962	ug/l	2.7	9066.89	
Cu	63	72	He	79.6258	ug/l	1.1	751315.27	
Cu	65	72	He	80.0536	ug/l	1.1	377163.62	
Zn	66	72	He	70.0546	ug/l	1.2	89893.86	
As	75	72	He	2.2423	ug/l	4.0	1836.44	
Mo	95	115	He	1.8259	ug/l	0.2	8324.35	
Mo	98	115	He	1.8389	ug/l	4.6	14291.73	
Ag	107	115	He	0.0490	ug/l	18.5	871.14	
Ag	109	115	He	0.0455	ug/l	2.4	787.80	
Cd	111	115	He	0.1330	ug/l	5.7	279.17	
Cd	114	115	He	0.2374	ug/l	1.9	1318.72	
[Pb]	206	175	He	4.1088	ug/l	1.3	53519.08	
[Pb]	207	175	He	4.0079	ug/l	1.9	44127.36	
Pb	208	175	He	4.0288	ug/l	1.1	206762.76	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	386924.42	0.5	465634.11	83.1	
Sc	45	No Gas	9009629.36	1.7	9033699.36	99.73	
Ge	72	H2	1957932.56	1.5	2007352.98	97.54	
Sc	45	He	207210.84	0.4	207415.29	99.9	
Ge	72	He	199925.20	0.9	208403.74	95.93	
In	115	He	2165952.68	1.4	2241849.28	96.61	
Lu	175	He	5355118.68	1.1	5577447.69	96.01	
Th	232	He	8727104.66	1.1	9174642.57	95.12	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	037_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 09:46:22
Sample Type	CCV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	268.5062	ug/l	2.5	6066605.73	107.4	
Se	77	72	H2	25.2875	ug/l	4.9	10604.63	101.15	
Se	78	72	H2	24.8074	ug/l	3.4	28430.64	99.23	
Cr	52	72	He	25.7034	ug/l	0.8	149022.57	102.81	
Cr	53	72	He	25.2664	ug/l	1.7	18526.62	101.07	
Ni	60	72	He	25.3852	ug/l	0.4	79602.53	101.54	
Ni	62	72	He	24.5109	ug/l	2.1	12205.49	98.04	
Cu	63	72	He	25.3488	ug/l	1.4	235420.03	101.4	
Cu	65	72	He	25.2258	ug/l	1.0	116987.21	100.9	
Zn	66	72	He	25.3280	ug/l	0.7	32035.46	101.31	
As	75	72	He	24.8530	ug/l	1.3	19856.86	99.41	
Mo	95	115	He	12.3516	ug/l	1.3	55286.31	98.81	
Mo	98	115	He	12.5061	ug/l	1.6	95534.06	100.05	
Ag	107	115	He	12.4399	ug/l	0.9	210364.78	99.52	
Ag	109	115	He	12.5227	ug/l	0.1	207421.20	100.18	
Cd	111	115	He	24.9447	ug/l	1.1	50954.80	99.78	
Cd	114	115	He	24.8628	ug/l	1.0	133570.07	99.45	
[Pb]	206	175	He	24.0775	ug/l	0.7	304736.68	96.31	
[Pb]	207	175	He	23.8853	ug/l	0.8	255611.23	95.54	
Pb	208	175	He	24.0511	ug/l	0.7	1199439.69	96.2	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	394723.92	1.6	465634.11	84.77	
Sc	45	No Gas	8850057.71	1.0	9033699.36	97.97	
Ge	72	H2	1948022.35	3.0	2007352.98	97.04	
Sc	45	He	201318.17	0.8	207415.29	97.06	
Ge	72	He	196626.21	0.3	208403.74	94.35	
In	115	He	2132477.36	0.4	2241849.28	95.12	
Lu	175	He	5212896.18	0.9	5577447.69	93.46	
Th	232	He	8535548.21	1.0	9174642.57	93.03	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 038_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 09:48:57

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1129	ug/l	23.6	5672.08	
Se	77	72	H2	0.3339	ug/l	21.8	1071.71	
Se	78	72	H2	0.0075	ug/l	25.0	22.00	
Cr	52	72	He	-0.0122	ug/l	N/A	563.35	
Cr	53	72	He	0.2014	ug/l	15.2	435.56	
Ni	60	72	He	-0.0089	ug/l	N/A	93.33	
Ni	62	72	He	-0.0073	ug/l	N/A	18.89	
Cu	63	72	He	0.0021	ug/l	120.7	245.56	
Cu	65	72	He	-0.0031	ug/l	N/A	108.89	
Zn	66	72	He	0.0457	ug/l	93.6	152.22	
As	75	72	He	0.0328	ug/l	28.8	39.00	
Mo	95	115	He	0.0102	ug/l	76.8	65.55	
Mo	98	115	He	0.0095	ug/l	31.2	97.78	
Ag	107	115	He	0.0011	ug/l	80.1	45.56	
Ag	109	115	He	0.0020	ug/l	5.8	51.11	
Cd	111	115	He	0.0063	ug/l	35.0	14.67	
Cd	114	115	He	0.0056	ug/l	27.7	48.17	
[Pb]	206	175	He	0.0011	ug/l	40.7	118.89	
[Pb]	207	175	He	-0.0001	ug/l	N/A	74.44	
Pb	208	175	He	0.0009	ug/l	89.4	431.11	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	245915.44	2.8	465634.11	52.81	Flag
Sc	45	No Gas	4969467.72	5.8	9033699.36	55.01	Flag
Ge	72	H2	1276585.47	2.0	2007352.98	63.6	
Sc	45	He	180892.36	6.8	207415.29	87.21	
Ge	72	He	179671.65	6.1	208403.74	86.21	
In	115	He	1948300.48	9.3	2241849.28	86.91	
Lu	175	He	4732890.78	7.3	5577447.69	84.86	
Th	232	He	7776714.26	8.7	9174642.57	84.76	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 040_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:35:58

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.4636	ug/l	2.3	18336.28	
Se	77	72	H2	0.4558	ug/l	41.0	1773.43	
Se	78	72	H2	0.0449	ug/l	20.4	80.67	
Cr	52	72	He	0.2089	ug/l	42.7	2014.58	
Cr	53	72	He	0.1762	ug/l	22.5	487.79	
Ni	60	72	He	0.4232	ug/l	38.6	1546.76	CCB Failed
Ni	62	72	He	0.4098	ug/l	28.4	242.22	CCB Failed
Cu	63	72	He	0.2412	ug/l	38.6	2644.68	CCB Failed
Cu	65	72	He	0.2129	ug/l	50.5	1192.28	CCB Failed
Zn	66	72	He	0.5324	ug/l	42.1	830.03	
As	75	72	He	0.3590	ug/l	39.7	322.34	
Mo	95	115	He	0.0014	ug/l	79.1	34.44	
Mo	98	115	He	0.0024	ug/l	56.4	55.56	
Ag	107	115	He	0.0236	ug/l	38.5	453.34	
Ag	109	115	He	0.0223	ug/l	26.9	414.46	
Cd	111	115	He	0.0465	ug/l	34.7	103.83	CCB Failed
Cd	114	115	He	0.0436	ug/l	34.7	272.33	CCB Failed
[Pb]	206	175	He	0.3095	ug/l	46.0	4205.13	CCB Failed
[Pb]	207	175	He	0.3263	ug/l	42.1	3726.09	CCB Failed
Pb	208	175	He	0.3168	ug/l	43.3	16915.34	CCB Failed

Sample uptake problem

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	403417.50	0.7	465634.11	86.64	
Sc	45	No Gas	8995232.42	0.7	9033699.36	99.57	
Ge	72	H2	2057375.61	0.9	2007352.98	102.49	
Sc	45	He	216382.83	0.6	207415.29	104.32	
Ge	72	He	208845.28	0.7	208403.74	100.21	
In	115	He	2256485.93	1.2	2241849.28	100.65	
Lu	175	He	5437501.73	1.0	5577447.69	97.49	
Th	232	He	8558402.37	1.3	9174642.57	93.28	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 041_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:39:26

Sample Type CCB

Comment —

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0004	ug/l	1908.2	7753.96	
Se	77	72	H2	0.3708	ug/l	31.0	1751.43	
Se	78	72	H2	-0.0018	ug/l	N/A	24.33	
Cr	52	72	He	0.0001	ug/l	31511.2	731.13	
Cr	53	72	He	-0.0151	ug/l	N/A	341.12	
Ni	60	72	He	0.0049	ug/l	143.4	153.34	
Ni	62	72	He	-0.0191	ug/l	N/A	15.56	
Cu	63	72	He	-0.0085	ug/l	N/A	180.00	
Cu	65	72	He	-0.0041	ug/l	N/A	122.23	
Zn	66	72	He	-0.0010	ug/l	N/A	114.45	
As	75	72	He	0.0043	ug/l	199.1	21.00	
Mo	95	115	He	0.0007	ug/l	699.0	31.11	
Mo	98	115	He	0.0011	ug/l	56.6	44.44	
Ag	107	115	He	-0.0009	ug/l	N/A	16.67	
Ag	109	115	He	0.0007	ug/l	45.5	35.56	
Cd	111	115	He	0.0018	ug/l	106.1	7.17	
Cd	114	115	He	0.0024	ug/l	102.7	38.00	
[Pb]	206	175	He	-0.0017	ug/l	N/A	100.00	
[Pb]	207	175	He	-0.0007	ug/l	N/A	78.89	
Pb	208	175	He	-0.0004	ug/l	N/A	426.67	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	398180.35	0.9	465634.11	85.51	
Sc	45	No Gas	9044310.47	0.9	9033699.36	100.12	
Ge	72	H2	2068739.64	1.0	2007352.98	103.06	
Sc	45	He	214281.32	1.7	207415.29	103.31	
Ge	72	He	208714.55	0.5	208403.74	100.15	
In	115	He	2242144.07	1.8	2241849.28	100.01	
Lu	175	He	5412305.76	0.9	5577447.69	97.04	
Th	232	He	8649638.20	1.0	9174642.57	94.28	

Prep Blank (PB) Report

Sample Name	KQ2411923-05
File Name	042_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:42:01
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.5704	ug/l	3.8	43837.39	
Se	77	72	H2	0.3618	ug/l	70.0	1733.42	
Se	78	72	H2	-0.0014	ug/l	N/A	24.67	
Cr	52	72	He	0.0846	ug/l	12.1	1242.27	
Cr	53	72	He	0.1101	ug/l	47.2	434.45	
Ni	60	72	He	0.0442	ug/l	22.1	282.23	
Ni	62	72	He	0.0299	ug/l	108.0	41.11	
Cu	63	72	He	0.0287	ug/l	6.1	543.35	
Cu	65	72	He	0.0303	ug/l	34.9	290.00	
Zn	66	72	He	0.1207	ug/l	26.8	275.56	
As	75	72	He	-0.0015	ug/l	N/A	16.00	
Mo	95	115	He	0.0214	ug/l	21.5	131.11	
Mo	98	115	He	0.0168	ug/l	33.0	174.45	
Ag	107	115	He	-0.0006	ug/l	N/A	22.22	
Ag	109	115	He	-0.0001	ug/l	N/A	22.22	
Cd	111	115	He	0.0019	ug/l	66.5	7.67	
Cd	114	115	He	0.1107	ug/l	0.3	665.68	Flag
[Pb]	206	175	He	0.1532	ug/l	6.0	2173.50	Flag
[Pb]	207	175	He	0.1434	ug/l	6.2	1710.11	Flag
Pb	208	175	He	0.1519	ug/l	1.7	8463.21	Flag

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QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	394475.05	0.5	465634.11	84.72	
Sc	45	No Gas	9019710.75	0.9	9033699.36	99.85	
Ge	72	H2	2052084.78	0.8	2007352.98	102.23	
Sc	45	He	212899.81	1.0	207415.29	102.64	
Ge	72	He	207479.65	0.8	208403.74	99.56	
In	115	He	2297555.83	2.6	2241849.28	102.48	
Lu	175	He	5512397.70	1.3	5577447.69	98.83	
Th	232	He	8701685.50	1.5	9174642.57	94.84	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411923-06
File Name	043_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:44:36
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	202.7213	ug/l	5.4	4656148.84	200	101.36	
Se	77	72	H2	50.0729	ug/l	0.2	20289.04	50	100.15	
Se	78	72	H2	50.0778	ug/l	1.2	59640.45	50	100.16	
Cr	52	72	He	20.2553	ug/l	0.8	123524.90	20	101.28	
Cr	53	72	He	19.6686	ug/l	2.0	15229.00	20	98.34	
Ni	60	72	He	50.8840	ug/l	0.4	167493.77	50	101.77	
Ni	62	72	He	50.3550	ug/l	1.2	26315.70	50	100.71	
Cu	63	72	He	24.4469	ug/l	0.8	238521.41	25	97.79	
Cu	65	72	He	24.7952	ug/l	0.7	120806.83	25	99.18	
Zn	66	72	He	48.5283	ug/l	2.2	64372.33	50	97.06	
As	75	72	He	49.3147	ug/l	1.1	41375.85	50	98.63	
Mo	95	115	He	50.0733	ug/l	1.1	234002.24	50	100.15	
Mo	98	115	He	50.0089	ug/l	2.2	398830.68	50	100.02	
Ag	107	115	He	4.9554	ug/l	1.3	87534.47	5	99.11	
Ag	109	115	He	4.9631	ug/l	1.6	85866.53	5	99.26	
Cd	111	115	He	5.0821	ug/l	0.5	10845.20	5	101.64	
Cd	114	115	He	4.8620	ug/l	1.3	27298.03	5	97.24	
[Pb]	206	175	He	45.9837	ug/l	1.6	605121.50	50	91.97	
[Pb]	207	175	He	46.5509	ug/l	1.3	517982.04	50	93.1	
Pb	208	175	He	46.4401	ug/l	1.5	2408017.11	50	92.88	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	392506.60	1.7	465634.11	84.3	
Sc	45	No Gas	8998427.97	1.6	9033699.36	99.61	
Ge	72	H2	2023874.30	0.7	2007352.98	100.82	
Sc	45	He	206997.85	1.6	207415.29	99.8	
Ge	72	He	206567.87	0.7	208403.74	99.12	
In	115	He	2227264.26	1.3	2241849.28	99.35	
Lu	175	He	5421893.53	2.1	5577447.69	97.21	
Th	232	He	8616777.79	1.2	9174642.57	93.92	

RC
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Reference Sample Report

Sample Name	K2407895-001
File Name	044_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:47:11
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

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QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	10519.7658	ug/l	3.0	239189154.94	
Se	77	72	H2	0.7658	ug/l	24.1	1827.77	
Se	78	72	H2	0.1372	ug/l	13.2	185.67	
Cr	52	72	He	18.0218	ug/l	2.0	108866.47	
Cr	53	72	He	17.4597	ug/l	0.9	13419.69	
Ni	60	72	He	13.4586	ug/l	1.7	43944.67	
Ni	62	72	He	13.1628	ug/l	4.9	6826.95	
Cu	63	72	He	55.8149	ug/l	0.8	538698.42	
Cu	65	72	He	55.9828	ug/l	0.9	269800.14	
Zn	66	72	He	42.6254	ug/l	1.4	55987.54	
As	75	72	He	1.8418	ug/l	3.2	1546.41	
Mo	95	115	He	1.1853	ug/l	1.9	5553.18	
Mo	98	115	He	1.2040	ug/l	3.7	9609.49	
Ag	107	115	He	0.0310	ug/l	13.3	577.79	
Ag	109	115	He	0.0355	ug/l	8.6	635.57	
Cd	111	115	He	0.0977	ug/l	3.4	211.17	
Cd	114	115	He	0.2016	ug/l	0.5	1152.71	
[Pb]	206	175	He	2.2009	ug/l	0.6	29415.81	
[Pb]	207	175	He	2.1184	ug/l	0.9	23927.51	
Pb	208	175	He	2.1615	ug/l	1.4	113803.75	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	383497.13	0.9	465634.11	82.36	
Sc	45	No Gas	8914895.20	1.5	9033699.36	98.68	
Ge	72	H2	1989060.96	2.3	2007352.98	99.09	
Sc	45	He	213017.68	1.3	207415.29	102.7	
Ge	72	He	204471.56	1.2	208403.74	98.11	
In	115	He	2221894.94	2.5	2241849.28	99.11	
Lu	175	He	5483774.78	1.3	5577447.69	98.32	
Th	232	He	8800373.41	0.5	9174642.57	95.92	

Duplicate Sample Report

Sample Name	KQ2411923-01
File Name	045_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 10:49:45
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	044_
Default Text	ARF ACRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	275309011.28	11790.9286	ug/l	4.9	11.4	
Se	77	H2	1909.44	0.8803	ug/l	3.6		< 5X MRL
Se	78	H2	369.34	0.2877	ug/l	5.4		< 5X MRL
Cr	52	He	184407.28	30.4669	ug/l	0.5	51.33	Dup Fail
Cr	53	He	22959.74	30.0580	ug/l	1.1	53.03	Dup Fail
Ni	60	He	60749.86	18.5328	ug/l	1.2	31.72	Dup Fail
Ni	62	He	9350.38	17.9610	ug/l	4.1	30.83	Dup Fail
Cu	63	He	675014.69	69.6197	ug/l	0.9	22.01	Dup Fail
Cu	65	He	337818.48	69.7779	ug/l	0.7	21.94	Dup Fail
Zn	66	He	66428.98	50.3564	ug/l	0.8	16.63	
As	75	He	2548.20	3.0350	ug/l	4.5		< 5X MRL
Mo	95	He	7064.88	1.5145	ug/l	3.0	24.38	Dup Fail
Mo	98	He	11938.76	1.5009	ug/l	2.5	21.95	Dup Fail
Ag	107	He	717.80	0.0391	ug/l	14.1		< 5X MRL
Ag	109	He	713.35	0.0401	ug/l	2.7		< 5X MRL
Cd	111	He	240.83	0.1120	ug/l	6.5		< 5X MRL
Cd	114	He	1247.72	0.2193	ug/l	3.1	8.41	
[Pb]	206	He	27110.56	2.0102	ug/l	6.6	9.06	
[Pb]	207	He	22522.07	1.9754	ug/l	1.9	6.99	
Pb	208	He	104557.85	1.9673	ug/l	3.0	9.41	

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QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	392064.03	1.1	465634.11	84.2	59.55	125.44	
Sc	45	No Gas	9161264.64	1.3	9033699.36	101.41	59.55	125.44	
Ge	72	H2	2029859.02	3.2	2007352.98	101.12	59.55	125.44	
Sc	45	He	213347.63	0.5	207415.29	102.86	59.55	125.44	
Ge	72	He	205417.62	0.3	208403.74	98.57	59.55	125.44	
In	115	He	2215099.48	1.5	2241849.28	98.81	59.55	125.44	
Lu	175	He	5534542.56	1.5	5577447.69	99.23	59.55	125.44	
Th	232	He	8899170.70	0.7	9174642.57	97	59.55	125.44	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 046_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:54:11

Sample Type CCV

Comment —

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	254.0267	ug/l	4.9	5860610.18	101.61	
Se	77	72	H2	25.2919	ug/l	2.3	9583.04	101.17	
Se	78	72	H2	24.1438	ug/l	2.5	25000.67	96.58	
Cr	52	72	He	25.0002	ug/l	0.5	138409.09	100	
Cr	53	72	He	24.9555	ug/l	1.0	17472.20	99.82	
Ni	60	72	He	24.9367	ug/l	1.3	74701.38	99.75	
Ni	62	72	He	25.0167	ug/l	3.1	11884.17	100.07	
Cu	63	72	He	24.6971	ug/l	0.5	219021.57	98.79	
Cu	65	72	He	24.8377	ug/l	0.6	109971.48	99.35	
Zn	66	72	He	24.8352	ug/l	1.9	30015.31	99.34	
As	75	72	He	24.3451	ug/l	1.9	18564.08	97.38	
Mo	95	115	He	12.4964	ug/l	0.8	52429.73	99.97	
Mo	98	115	He	12.5329	ug/l	0.8	89697.05	100.26	
Ag	107	115	He	12.4034	ug/l	2.8	196380.87	99.23	
Ag	109	115	He	12.3610	ug/l	1.9	191762.40	98.89	
Cd	111	115	He	24.6014	ug/l	1.4	47077.83	98.41	
Cd	114	115	He	24.4536	ug/l	2.1	123039.50	97.81	
[Pb]	206	175	He	23.3281	ug/l	1.7	279048.32	93.31	
[Pb]	207	175	He	23.2516	ug/l	0.4	235264.07	93.01	
Pb	208	175	He	23.2888	ug/l	0.6	1098077.72	93.16	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	401809.39	1.1	465634.11	86.29	
Sc	45	No Gas	9039734.09	1.3	9033699.36	100.07	
Ge	72	H2	1758541.63	1.7	2007352.98	87.61	
Sc	45	He	188112.31	6.0	207415.29	90.69	
Ge	72	He	187755.90	4.9	208403.74	90.09	
In	115	He	1998434.71	5.6	2241849.28	89.14	
Lu	175	He	4929296.05	5.2	5577447.69	88.38	
Th	232	He	7946130.30	4.7	9174642.57	86.61	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 047_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 10:57:40

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0401	ug/l	27.1	8342.02	
Se	77	72	H2	0.1038	ug/l	131.7	1593.08	
Se	78	72	H2	0.0054	ug/l	73.6	32.00	
Cr	52	72	He	-0.0080	ug/l	N/A	653.35	
Cr	53	72	He	0.0593	ug/l	183.7	381.12	
Ni	60	72	He	-0.0018	ug/l	N/A	125.55	
Ni	62	72	He	-0.0178	ug/l	N/A	15.55	
Cu	63	72	He	-0.0042	ug/l	N/A	213.34	
Cu	65	72	He	-0.0035	ug/l	N/A	120.00	
Zn	66	72	He	0.0036	ug/l	717.4	115.55	
As	75	72	He	0.0132	ug/l	62.5	27.33	
Mo	95	115	He	0.0039	ug/l	99.1	44.44	
Mo	98	115	He	0.0030	ug/l	62.0	57.78	
Ag	107	115	He	0.0014	ug/l	55.8	54.44	
Ag	109	115	He	0.0026	ug/l	58.9	66.67	
Cd	111	115	He	0.0066	ug/l	37.9	16.83	
Cd	114	115	He	0.0069	ug/l	27.0	61.17	
[Pb]	206	175	He	0.0013	ug/l	70.3	137.78	
[Pb]	207	175	He	0.0046	ug/l	70.9	135.56	
Pb	208	175	He	0.0018	ug/l	105.5	533.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	385777.60	1.1	465634.11	82.85	
Sc	45	No Gas	8704874.10	0.5	9033699.36	96.36	
Ge	72	H2	1998634.92	0.6	2007352.98	99.57	
Sc	45	He	202408.85	1.7	207415.29	97.59	
Ge	72	He	199920.07	0.2	208403.74	95.93	
In	115	He	2162977.75	1.4	2241849.28	96.48	
Lu	175	He	5355881.45	1.1	5577447.69	96.03	
Th	232	He	8687360.71	1.0	9174642.57	94.69	

Prep Blank (PB) Report

Sample Name	KQ2411923-05
File Name	048_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:00:16
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.4679	ug/l	8.9	40276.81	
Se	77	72	H2	0.2163	ug/l	113.3	1603.75	
Se	78	72	H2	-0.0036	ug/l	N/A	21.00	
Cr	52	72	He	0.0760	ug/l	18.2	1150.05	
Cr	53	72	He	0.2101	ug/l	21.2	493.34	
Ni	60	72	He	0.0492	ug/l	29.2	288.89	
Ni	62	72	He	0.0456	ug/l	50.6	47.78	
Cu	63	72	He	0.0304	ug/l	14.2	541.12	
Cu	65	72	He	0.0197	ug/l	57.8	230.00	
Zn	66	72	He	0.1303	ug/l	27.0	278.89	
As	75	72	He	0.0074	ug/l	82.5	22.67	
Mo	95	115	He	0.0197	ug/l	28.9	115.56	
Mo	98	115	He	0.0232	ug/l	3.9	213.34	
Ag	107	115	He	0.0000	ug/l	5728.5	31.11	
Ag	109	115	He	0.0000	ug/l	N/A	22.22	
Cd	111	115	He	0.0018	ug/l	46.2	7.00	
Cd	114	115	He	0.1142	ug/l	1.8	644.51	Flag
[Pb]	206	175	He	0.1514	ug/l	3.5	2105.72	Flag
[Pb]	207	175	He	0.1496	ug/l	1.1	1743.45	Flag
Pb	208	175	He	0.1537	ug/l	2.2	8384.31	Flag

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	387113.68	1.2	465634.11	83.14	
Sc	45	No Gas	8769338.26	3.0	9033699.36	97.07	
Ge	72	H2	1960392.77	2.1	2007352.98	97.66	
Sc	45	He	207184.06	1.9	207415.29	99.89	
Ge	72	He	200610.83	0.1	208403.74	96.26	
In	115	He	2157925.52	0.6	2241849.28	96.26	
Lu	175	He	5400241.59	1.3	5577447.69	96.82	
Th	232	He	8764162.37	0.4	9174642.57	95.53	

Sample Report

Sample Name K2407895-004

File Name 049SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:02:52

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	25967.1123	ug/l	2.8	607141291.43	
Se	77	72	H2	0.9133	ug/l	15.4	1964.45	
Se	78	72	H2	0.2855	ug/l	4.7	375.01	
Cr	52	72	He	45.4776	ug/l	0.3	276117.01	
Cr	53	72	He	45.2400	ug/l	0.6	34532.08	
Ni	60	72	He	44.5466	ug/l	1.2	146464.62	
Ni	62	72	He	44.0118	ug/l	0.8	22976.49	
Cu	63	72	He	88.3717	ug/l	0.6	860504.03	
Cu	65	72	He	89.1543	ug/l	0.5	433471.63	
Zn	66	72	He	143.5297	ug/l	0.2	189955.03	
As	75	72	He	54.4562	ug/l	0.8	45632.62	
Mo	95	115	He	1.5130	ug/l	2.7	7161.58	
Mo	98	115	He	1.4956	ug/l	2.5	12069.97	
Ag	107	115	He	0.2028	ug/l	2.8	3647.09	
Ag	109	115	He	0.2022	ug/l	6.2	3553.74	
Cd	111	115	He	0.1614	ug/l	8.0	350.67	
Cd	114	115	He	0.2600	ug/l	1.4	1496.24	
[Pb]	206	175	He	8.3533	ug/l	0.6	110837.68	
[Pb]	207	175	He	8.0382	ug/l	0.8	90170.76	
Pb	208	175	He	8.1659	ug/l	0.6	426918.19	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	404686.89	0.7	465634.11	86.91	
Sc	45	No Gas	9166327.14	2.3	9033699.36	101.47	
Ge	72	H2	2075202.49	0.8	2007352.98	103.38	
Sc	45	He	215714.75	0.7	207415.29	104	
Ge	72	He	206316.99	0.7	208403.74	99	
In	115	He	2247292.35	0.7	2241849.28	100.24	
Lu	175	He	5460984.50	1.0	5577447.69	97.91	
Th	232	He	8832313.62	1.0	9174642.57	96.27	

Sample Report

Sample Name K2407895-005

File Name 050SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:05:27

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	37599.3242	ug/l	5.2	911050168.24	
Se	77	72	H2	1.6509	ug/l	23.2	2112.80	
Se	78	72	H2	0.5789	ug/l	3.4	689.02	
Cr	52	72	He	65.1144	ug/l	1.6	390135.52	
Cr	53	72	He	64.0810	ug/l	2.2	48165.49	
Ni	60	72	He	72.2243	ug/l	0.2	234472.15	
Ni	62	72	He	70.7155	ug/l	1.4	36448.45	
Cu	63	72	He	209.1562	ug/l	2.5	2011111.72	
Cu	65	72	He	191.9465	ug/l	1.5	921568.19	
Zn	66	72	He	207.5643	ug/l	1.2	271258.28	
As	75	72	He	108.2759	ug/l	0.8	89600.62	
Mo	95	115	He	1.9592	ug/l	3.4	9048.05	
Mo	98	115	He	1.9752	ug/l	2.4	15561.72	
Ag	107	115	He	0.3029	ug/l	3.6	5303.10	
Ag	109	115	He	0.3001	ug/l	1.2	5139.73	
Cd	111	115	He	0.2474	ug/l	3.0	523.34	
Cd	114	115	He	0.3313	ug/l	5.7	1854.77	
[Pb]	206	175	He	13.3427	ug/l	0.7	174596.21	
[Pb]	207	175	He	12.9624	ug/l	1.3	143410.95	
Pb	208	175	He	13.0989	ug/l	0.6	675385.63	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	432310.25	0.2	465634.11	92.84	
Sc	45	No Gas	9505207.40	0.6	9033699.36	105.22	
Ge	72	H2	1949392.01	2.4	2007352.98	97.11	
Sc	45	He	212659.59	0.6	207415.29	102.53	
Ge	72	He	203776.23	0.6	208403.74	97.78	
In	115	He	2195562.00	2.0	2241849.28	97.94	
Lu	175	He	5387919.37	0.8	5577447.69	96.6	
Th	232	He	8893399.45	1.2	9174642.57	96.93	

Sample Report

Sample Name	K2407895-006
File Name	051SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:08:00
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	31853.2916	ug/l	2.0	758010760.99	
Se	77	72	H2	1.2493	ug/l	8.0	2008.79	
Se	78	72	H2	0.4196	ug/l	1.1	517.01	
Cr	52	72	He	54.4003	ug/l	2.1	322633.94	
Cr	53	72	He	54.1378	ug/l	0.7	40319.08	
Ni	60	72	He	54.7245	ug/l	0.5	175822.40	
Ni	62	72	He	54.7397	ug/l	0.9	27922.69	
Cu	63	72	He	107.7761	ug/l	1.0	1025596.38	
Cu	65	72	He	108.0374	ug/l	0.8	513333.95	
Zn	66	72	He	175.1432	ug/l	0.7	226506.13	
As	75	72	He	75.3055	ug/l	0.4	61666.98	
Mo	95	115	He	0.9818	ug/l	2.0	4560.65	
Mo	98	115	He	0.9780	ug/l	1.3	7742.96	
Ag	107	115	He	0.2053	ug/l	8.4	3613.76	
Ag	109	115	He	0.1979	ug/l	5.8	3405.93	
Cd	111	115	He	0.1641	ug/l	2.7	349.17	
Cd	114	115	He	0.2536	ug/l	5.0	1430.40	
[Pb]	206	175	He	14.3612	ug/l	2.2	189287.94	
[Pb]	207	175	He	13.8804	ug/l	2.0	154694.60	
Pb	208	175	He	14.0829	ug/l	2.5	731389.78	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	422459.08	1.2	465634.11	90.73	
Sc	45	No Gas	9331595.18	1.2	9033699.36	103.3	
Ge	72	H2	1991430.96	1.3	2007352.98	99.21	
Sc	45	He	211195.68	0.9	207415.29	101.82	
Ge	72	He	201635.92	0.5	208403.74	96.75	
In	115	He	2200899.40	0.9	2241849.28	98.17	
Lu	175	He	5428665.06	2.0	5577447.69	97.33	
Th	232	He	8750890.29	1.0	9174642.57	95.38	

Sample Report

Sample Name	K2407895-007
File Name	052SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:10:35
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	19999.2708	ug/l	4.3	477285101.04	
Se	77	72	H2	3.5535	ug/l	7.7	2777.23	
Se	78	72	H2	3.2297	ug/l	1.4	3704.08	
Cr	52	72	He	20.6024	ug/l	0.9	123089.29	
Cr	53	72	He	19.5360	ug/l	1.5	14823.04	
Ni	60	72	He	62.3579	ug/l	0.3	201079.24	
Ni	62	72	He	62.8620	ug/l	0.7	32182.31	
Cu	63	72	He	55.7294	ug/l	0.9	532416.52	
Cu	65	72	He	56.1752	ug/l	0.8	267978.75	
Zn	66	72	He	408.9279	ug/l	0.4	530684.87	
As	75	72	He	36.7568	ug/l	0.9	30220.97	
Mo	95	115	He	13.2058	ug/l	0.8	61437.50	
Mo	98	115	He	13.2450	ug/l	1.6	105154.33	
Ag	107	115	He	0.1454	ug/l	6.3	2586.89	
Ag	109	115	He	0.1391	ug/l	3.9	2416.86	
Cd	111	115	He	3.2931	ug/l	0.8	6994.80	
Cd	114	115	He	3.2691	ug/l	1.1	18275.04	
[Pb]	206	175	He	7.8147	ug/l	0.4	102716.64	
[Pb]	207	175	He	7.5672	ug/l	0.8	84088.73	
Pb	208	175	He	7.6629	ug/l	0.8	396848.19	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407351.61	0.2	465634.11	87.48	
Sc	45	No Gas	9363306.02	1.4	9033699.36	103.65	
Ge	72	H2	1936979.99	1.9	2007352.98	96.49	
Sc	45	He	211054.73	0.4	207415.29	101.75	
Ge	72	He	202388.97	0.5	208403.74	97.11	
In	115	He	2216621.53	1.6	2241849.28	98.87	
Lu	175	He	5409125.20	0.4	5577447.69	96.98	
Th	232	He	8937499.03	1.1	9174642.57	97.42	

Sample Report

Sample Name K2407895-008

File Name 053SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:13:09

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	16183.9962	ug/l	4.8	377241745.01	
Se	77	72	H2	1.4455	ug/l	7.8	2062.46	
Se	78	72	H2	1.2000	ug/l	3.0	1418.73	
Cr	52	72	He	17.2852	ug/l	2.0	104808.26	
Cr	53	72	He	16.8042	ug/l	1.8	12973.82	
Ni	60	72	He	31.7443	ug/l	0.8	103844.64	
Ni	62	72	He	30.7482	ug/l	1.3	15971.93	
Cu	63	72	He	32.8970	ug/l	1.4	318732.92	
Cu	65	72	He	32.8873	ug/l	1.9	159106.65	
Zn	66	72	He	196.9293	ug/l	1.3	259149.86	
As	75	72	He	19.2553	ug/l	1.7	16057.53	
Mo	95	115	He	7.0858	ug/l	1.6	33227.31	
Mo	98	115	He	7.0811	ug/l	0.6	56667.77	
Ag	107	115	He	0.1928	ug/l	3.0	3444.83	
Ag	109	115	He	0.1886	ug/l	2.7	3294.80	
Cd	111	115	He	1.8608	ug/l	1.2	3984.31	
Cd	114	115	He	1.8485	ug/l	2.1	10422.44	
[Pb]	206	175	He	5.9399	ug/l	2.3	79098.22	
[Pb]	207	175	He	5.7750	ug/l	3.0	65007.40	
Pb	208	175	He	5.8254	ug/l	2.1	305664.11	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	403750.54	1.8	465634.11	86.71	
Sc	45	No Gas	9145634.63	1.5	9033699.36	101.24	
Ge	72	H2	1973948.88	0.7	2007352.98	98.34	
Sc	45	He	208832.43	2.1	207415.29	100.68	
Ge	72	He	205198.39	1.0	208403.74	98.46	
In	115	He	2233423.27	1.0	2241849.28	99.62	
Lu	175	He	5480488.81	2.8	5577447.69	98.26	
Th	232	He	8808104.45	0.3	9174642.57	96	

Sample Report

Sample Name	K2407895-009
File Name	054SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:15:43
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	18770.6508	ug/l	2.3	449022817.71	
Se	77	72	H2	4.0615	ug/l	8.7	2979.60	
Se	78	72	H2	3.6393	ug/l	2.0	4201.19	
Cr	52	72	He	16.3236	ug/l	0.3	99987.75	
Cr	53	72	He	16.0501	ug/l	2.2	12527.93	
Ni	60	72	He	90.1866	ug/l	0.7	297634.86	
Ni	62	72	He	89.8368	ug/l	2.0	47068.68	
Cu	63	72	He	53.4544	ug/l	1.3	522778.11	
Cu	65	72	He	53.5889	ug/l	0.6	261700.94	
Zn	66	72	He	818.0007	ug/l	1.0	1086574.37	
As	75	72	He	55.4677	ug/l	0.3	46675.42	
Mo	95	115	He	24.2835	ug/l	1.0	116432.90	
Mo	98	115	He	24.3370	ug/l	0.8	199159.61	
Ag	107	115	He	0.1237	ug/l	7.5	2274.62	
Ag	109	115	He	0.1278	ug/l	7.3	2291.28	
Cd	111	115	He	9.6578	ug/l	1.2	21139.23	
Cd	114	115	He	9.3329	ug/l	0.4	53737.75	
[Pb]	206	175	He	18.9781	ug/l	0.8	251680.71	
[Pb]	207	175	He	18.5179	ug/l	1.7	207622.76	
Pb	208	175	He	18.7424	ug/l	1.0	979353.15	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	403503.27	0.9	465634.11	86.66	
Sc	45	No Gas	9381106.85	0.6	9033699.36	103.85	
Ge	72	H2	1951071.52	2.0	2007352.98	97.2	
Sc	45	He	215988.50	0.7	207415.29	104.13	
Ge	72	He	207179.50	0.4	208403.74	99.41	
In	115	He	2284860.64	0.6	2241849.28	101.92	
Lu	175	He	5461676.86	1.2	5577447.69	97.92	
Th	232	He	8892842.78	0.8	9174642.57	96.93	

Sample Report

Sample Name K2407895-010

File Name 055SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:18:18

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	22805.5182	ug/l	3.8	565637257.52	
Se	77	72	H2	2.9089	ug/l	12.5	2672.21	
Se	78	72	H2	2.1536	ug/l	0.3	2600.54	
Cr	52	72	He	38.0423	ug/l	2.1	230757.66	
Cr	53	72	He	37.6207	ug/l	1.7	28733.82	
Ni	60	72	He	64.6115	ug/l	1.2	212093.23	
Ni	62	72	He	64.8596	ug/l	1.3	33804.24	
Cu	63	72	He	89.3074	ug/l	1.4	868406.18	
Cu	65	72	He	89.7262	ug/l	1.4	435651.23	
Zn	66	72	He	274.5869	ug/l	1.3	362793.88	
As	75	72	He	28.6973	ug/l	1.8	24021.50	
Mo	95	115	He	3.5181	ug/l	2.1	16533.76	
Mo	98	115	He	3.5338	ug/l	3.4	28322.92	
Ag	107	115	He	0.1848	ug/l	8.4	3304.80	
Ag	109	115	He	0.1905	ug/l	5.8	3329.25	
Cd	111	115	He	1.1734	ug/l	2.2	2516.36	
Cd	114	115	He	1.2503	ug/l	2.1	7066.51	
[Pb]	206	175	He	13.5098	ug/l	3.1	177956.01	
[Pb]	207	175	He	13.0135	ug/l	1.9	144980.50	
Pb	208	175	He	13.2144	ug/l	2.4	685956.77	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	424740.89	0.6	465634.11	91.22	
Sc	45	No Gas	9728167.11	1.8	9033699.36	107.69	
Ge	72	H2	2032317.90	0.9	2007352.98	101.24	
Sc	45	He	218355.22	0.4	207415.29	105.27	
Ge	72	He	206059.27	1.7	208403.74	98.88	
In	115	He	2236811.25	2.9	2241849.28	99.78	
Lu	175	He	5426752.00	2.9	5577447.69	97.3	
Th	232	He	8889527.99	1.1	9174642.57	96.89	

Sample Report

Sample Name K2407895-011

File Name 056SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:20:52

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	34095.7195	ug/l	3.2	642027512.27	
Se	77	72	H2	2.3105	ug/l	8.3	2388.17	
Se	78	72	H2	1.8754	ug/l	2.4	2212.48	
Cr	52	72	He	39.9866	ug/l	1.3	240527.21	
Cr	53	72	He	38.9403	ug/l	1.3	29486.24	
Ni	60	72	He	74.2199	ug/l	0.3	241616.01	
Ni	62	72	He	73.3699	ug/l	0.9	37920.65	
Cu	63	72	He	92.4286	ug/l	0.9	891390.14	
Cu	65	72	He	92.5552	ug/l	0.8	445693.68	
Zn	66	72	He	308.9592	ug/l	1.0	404836.34	
As	75	72	He	30.9870	ug/l	0.6	25725.29	
Mo	95	115	He	4.6410	ug/l	1.9	21223.47	
Mo	98	115	He	4.7243	ug/l	2.8	36856.10	
Ag	107	115	He	0.1488	ug/l	2.8	2599.12	
Ag	109	115	He	0.1467	ug/l	5.7	2501.33	
Cd	111	115	He	1.5653	ug/l	3.7	3266.16	
Cd	114	115	He	1.5999	ug/l	2.6	8795.50	
[Pb]	206	175	He	12.4789	ug/l	0.6	166334.47	
[Pb]	207	175	He	12.0005	ug/l	1.3	135241.71	
Pb	208	175	He	12.2258	ug/l	1.4	642088.08	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	368684.26	3.2	465634.11	79.18	
Sc	45	No Gas	7392541.65	4.7	9033699.36	81.83	
Ge	72	H2	1983445.06	2.9	2007352.98	98.81	
Sc	45	He	218282.09	0.8	207415.29	105.24	
Ge	72	He	204341.47	0.4	208403.74	98.05	
In	115	He	2177421.97	2.3	2241849.28	97.13	
Lu	175	He	5487952.70	0.6	5577447.69	98.4	
Th	232	He	8971374.66	2.1	9174642.57	97.78	

Sample Report

Sample Name	K2407895-012
File Name	057SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:23:26
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	21042.5484	ug/l	3.5	506580477.65	
Se	77	72	H2	2.7674	ug/l	13.5	2569.87	
Se	78	72	H2	2.3280	ug/l	2.3	2756.89	
Cr	52	72	He	34.9045	ug/l	0.4	210131.15	
Cr	53	72	He	34.8799	ug/l	0.6	26458.02	
Ni	60	72	He	60.6477	ug/l	1.1	197519.58	
Ni	62	72	He	60.1111	ug/l	3.6	31080.35	
Cu	63	72	He	84.9551	ug/l	1.5	819598.67	
Cu	65	72	He	85.3829	ug/l	1.3	411310.90	
Zn	66	72	He	271.0120	ug/l	0.4	355261.34	
As	75	72	He	28.8868	ug/l	1.3	23990.79	
Mo	95	115	He	3.5930	ug/l	1.3	16854.11	
Mo	98	115	He	3.6292	ug/l	0.7	29040.77	
Ag	107	115	He	0.1638	ug/l	1.3	2931.39	
Ag	109	115	He	0.1608	ug/l	11.0	2808.04	
Cd	111	115	He	1.1526	ug/l	1.6	2467.19	
Cd	114	115	He	1.1940	ug/l	1.9	6735.70	
[Pb]	206	175	He	13.2895	ug/l	1.0	176024.11	
[Pb]	207	175	He	12.8283	ug/l	1.3	143660.16	
Pb	208	175	He	12.9986	ug/l	1.0	678393.90	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	417688.27	0.3	465634.11	89.7	
Sc	45	No Gas	9443409.07	1.2	9033699.36	104.54	
Ge	72	H2	1995371.38	2.5	2007352.98	99.4	
Sc	45	He	213060.11	1.6	207415.29	102.72	
Ge	72	He	204413.37	0.4	208403.74	98.09	
In	115	He	2231962.31	1.8	2241849.28	99.56	
Lu	175	He	5453790.48	0.9	5577447.69	97.78	
Th	232	He	8930687.16	1.3	9174642.57	97.34	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 058_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:26:01

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	265.9963	ug/l	2.1	6209587.39	106.4	
Se	77	72	H2	24.5131	ug/l	1.6	10652.00	98.05	
Se	78	72	H2	24.4010	ug/l	1.2	28845.98	97.6	
Cr	52	72	He	25.4554	ug/l	1.6	153166.60	101.82	
Cr	53	72	He	25.5265	ug/l	0.1	19422.08	102.11	
Ni	60	72	He	25.1733	ug/l	1.1	81926.85	100.69	
Ni	62	72	He	24.8945	ug/l	0.9	12865.98	99.58	
Cu	63	72	He	24.8192	ug/l	0.8	239215.22	99.28	
Cu	65	72	He	24.9884	ug/l	1.1	120263.94	99.95	
Zn	66	72	He	25.3436	ug/l	0.8	33266.66	101.37	
As	75	72	He	24.8757	ug/l	0.8	20627.11	99.5	
Mo	95	115	He	12.4196	ug/l	4.2	57947.30	99.36	
Mo	98	115	He	12.4196	ug/l	3.5	98909.91	99.36	
Ag	107	115	He	12.2397	ug/l	3.8	215769.63	97.92	
Ag	109	115	He	12.2817	ug/l	2.8	212112.16	98.25	
Cd	111	115	He	24.4277	ug/l	3.4	52022.06	97.71	
Cd	114	115	He	24.2510	ug/l	3.3	135831.48	97	
[Pb]	206	175	He	23.1366	ug/l	1.9	302564.63	92.55	
[Pb]	207	175	He	23.3054	ug/l	1.4	257700.82	93.22	
Pb	208	175	He	23.3609	ug/l	1.8	1203716.61	93.44	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	398865.73	0.6	465634.11	85.66	
Sc	45	No Gas	9144644.91	0.4	9033699.36	101.23	
Ge	72	H2	2008347.63	2.2	2007352.98	100.05	
Sc	45	He	207120.43	1.2	207415.29	99.86	
Ge	72	He	204061.82	0.7	208403.74	97.92	
In	115	He	2224808.00	3.2	2241849.28	99.24	
Lu	175	He	5386945.20	1.8	5577447.69	96.58	
Th	232	He	8834382.99	1.3	9174642.57	96.29	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 059_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:28:36

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1789	ug/l	3.1	11462.66	
Se	77	72	H2	0.1107	ug/l	41.9	1553.74	
Se	78	72	H2	0.0053	ug/l	41.5	31.00	
Cr	52	72	He	-0.0014	ug/l	N/A	687.80	
Cr	53	72	He	0.1008	ug/l	71.3	408.90	
Ni	60	72	He	0.0073	ug/l	67.9	153.34	
Ni	62	72	He	0.0000	ug/l	N/A	24.45	
Cu	63	72	He	0.0025	ug/l	30.5	274.45	
Cu	65	72	He	0.0002	ug/l	1447.3	136.67	
Zn	66	72	He	0.0356	ug/l	51.1	155.56	
As	75	72	He	0.0246	ug/l	9.2	36.33	
Mo	95	115	He	0.0050	ug/l	63.0	50.00	
Mo	98	115	He	0.0085	ug/l	12.3	101.11	
Ag	107	115	He	0.0023	ug/l	128.6	71.11	
Ag	109	115	He	0.0025	ug/l	53.0	65.55	
Cd	111	115	He	0.0085	ug/l	18.5	21.00	
Cd	114	115	He	0.0087	ug/l	10.9	71.83	
[Pb]	206	175	He	0.0012	ug/l	199.7	132.22	
[Pb]	207	175	He	0.0031	ug/l	85.5	115.55	
Pb	208	175	He	0.0031	ug/l	13.4	585.56	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	389615.11	0.7	465634.11	83.67	
Sc	45	No Gas	8735421.59	1.2	9033699.36	96.7	
Ge	72	H2	1945846.24	0.8	2007352.98	96.94	
Sc	45	He	201611.81	0.6	207415.29	97.2	
Ge	72	He	198681.90	0.7	208403.74	95.34	
In	115	He	2185118.65	0.2	2241849.28	97.47	
Lu	175	He	5190774.66	1.3	5577447.69	93.07	
Th	232	He	8682509.24	1.2	9174642.57	94.64	

Prep Blank (PB) Report

Sample Name	KQ2411912-05
File Name	060_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:31:11
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	1.8364	ug/l	5.2	33668.62	
Se	77	72	H2	-0.2154	ug/l	N/A	875.36	
Se	78	72	H2	-0.0040	ug/l	N/A	12.33	
Cr	52	72	He	0.1063	ug/l	33.9	1144.49	
Cr	53	72	He	0.1717	ug/l	43.4	400.01	
Ni	60	72	He	0.0492	ug/l	21.9	250.00	
Ni	62	72	He	0.0542	ug/l	64.7	45.56	
Cu	63	72	He	0.0250	ug/l	10.0	423.34	
Cu	65	72	He	0.0144	ug/l	37.8	177.78	
Zn	66	72	He	0.1767	ug/l	23.3	293.34	
As	75	72	He	0.0079	ug/l	67.3	20.00	
Mo	95	115	He	0.0157	ug/l	41.0	88.89	
Mo	98	115	He	0.0200	ug/l	13.5	168.89	
Ag	107	115	He	-0.0012	ug/l	N/A	10.00	
Ag	109	115	He	0.0001	ug/l	618.5	21.11	
Cd	111	115	He	0.0025	ug/l	19.4	7.50	
Cd	114	115	He	0.1201	ug/l	4.2	608.34	Flag
[Pb]	206	175	He	0.0033	ug/l	79.4	147.78	
[Pb]	207	175	He	0.0068	ug/l	79.6	146.67	
Pb	208	175	He	0.0043	ug/l	16.8	601.13	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	267406.49	0.8	465634.11	57.43	Flag
Sc	45	No Gas	6080539.62	1.0	9033699.36	67.31	
Ge	72	H2	1186402.70	1.3	2007352.98	59.1	Flag
Sc	45	He	180182.41	7.9	207415.29	86.87	
Ge	72	He	173072.48	5.8	208403.74	83.05	
In	115	He	1941055.39	7.2	2241849.28	86.58	
Lu	175	He	4855385.92	5.8	5577447.69	87.05	
Th	232	He	7817111.34	6.4	9174642.57	85.2	

8/14/24

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411912-06
File Name	061_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:33:48
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	45	No Gas	210.0143	ug/l	3.7	4545835.51	200	105.01	
Se	77	72	H2	49.8437	ug/l	2.9	17558.36	50	99.69	
Se	78	72	H2	50.9785	ug/l	1.7	52767.92	50	101.96	
Cr	52	72	He	21.1944	ug/l	2.1	122994.20	20	105.97	
Cr	53	72	He	21.2318	ug/l	3.1	15619.33	20	106.16	
Ni	60	72	He	53.6294	ug/l	2.2	168013.12	50	107.26	
Ni	62	72	He	52.3599	ug/l	1.7	26046.38	50	104.72	
Cu	63	72	He	25.9181	ug/l	1.1	240699.24	25	103.67	
Cu	65	72	He	26.2996	ug/l	1.7	121954.96	25	105.2	
Zn	66	72	He	51.8850	ug/l	2.3	65505.36	50	103.77	
As	75	72	He	52.1921	ug/l	1.4	41684.60	50	104.38	
Mo	95	115	He	53.6997	ug/l	1.6	239373.43	50	107.4	
Mo	98	115	He	54.1165	ug/l	1.3	411744.61	50	108.23	
Ag	107	115	He	5.3288	ug/l	3.5	89777.59	5	106.58	
Ag	109	115	He	5.4103	ug/l	1.7	89286.31	5	108.21	
Cd	111	115	He	5.4762	ug/l	2.1	11146.06	5	109.52	
Cd	114	115	He	5.2883	ug/l	1.1	28323.40	5	105.77	
[Pb]	206	175	He	49.6798	ug/l	1.4	648100.38	50	99.36	
[Pb]	207	175	He	51.3027	ug/l	0.8	565929.70	50	102.61	
Pb	208	175	He	51.0343	ug/l	0.7	2623482.87	50	102.07	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	404587.75	0.8	465634.11	86.89	
Sc	45	No Gas	8477789.94	1.0	9033699.36	93.85	
Ge	72	H2	1759363.02	1.7	2007352.98	87.65	
Sc	45	He	189442.50	2.1	207415.29	91.33	
Ge	72	He	196643.42	1.2	208403.74	94.36	
In	115	He	2124767.00	1.6	2241849.28	94.78	
Lu	175	He	5374540.76	1.1	5577447.69	96.36	
Th	232	He	9136338.82	0.0	9174642.57	99.58	

Reference Sample Report

Sample Name	K2407891-001
File Name	062_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:36:23
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	22404.3746	ug/l	4.2	513863232.91	
Se	77	72	H2	2.4246	ug/l	5.2	2085.47	
Se	78	72	H2	3.0752	ug/l	2.5	3099.62	
Cr	52	72	He	113.2396	ug/l	0.6	655960.01	
Cr	53	72	He	110.9097	ug/l	2.2	80412.90	
Ni	60	72	He	85.9791	ug/l	1.4	270023.39	
Ni	62	72	He	86.2756	ug/l	0.5	43018.18	
Cu	63	72	He	79.9487	ug/l	1.0	743947.14	
Cu	65	72	He	80.0887	ug/l	0.6	372121.81	
Zn	66	72	He	172.2819	ug/l	0.4	217860.69	
As	75	72	He	26.2816	ug/l	1.1	21054.59	
Mo	95	115	He	2.9672	ug/l	2.1	13987.02	
Mo	98	115	He	2.9600	ug/l	1.0	23805.88	
Ag	107	115	He	0.1441	ug/l	4.5	2594.67	
Ag	109	115	He	0.1455	ug/l	2.7	2557.99	
Cd	111	115	He	1.0257	ug/l	0.7	2206.48	
Cd	114	115	He	1.0840	ug/l	0.3	6147.81	
[Pb]	206	175	He	5.9203	ug/l	1.1	80229.42	
[Pb]	207	175	He	5.6968	ug/l	0.3	65268.54	
Pb	208	175	He	5.7689	ug/l	1.0	308011.09	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407549.09	0.8	465634.11	87.53	
Sc	45	No Gas	8997429.37	1.1	9033699.36	99.6	
Ge	72	H2	1701476.36	1.0	2007352.98	84.76	
Sc	45	He	204464.17	1.7	207415.29	98.58	
Ge	72	He	197156.61	0.4	208403.74	94.6	
In	115	He	2242544.04	0.6	2241849.28	100.03	
Lu	175	He	5574818.80	1.3	5577447.69	99.95	
Th	232	He	9265466.53	1.2	9174642.57	100.99	

Duplicate Sample Report

Sample Name	KQ2411912-01
File Name	063_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:38:58
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	062_
Default Text	ARL ALSLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	549576422.60	23773.2173	ug/l	2.8	5.93	
Se	77	H2	1983.45	2.3571	ug/l	2.1		< 5X MRL
Se	78	H2	2889.58	2.9857	ug/l	3.3		< 5X MRL
Cr	52	He	912433.68	159.6441	ug/l	0.2	34.01	Dup Fail
Cr	53	He	110863.91	155.1056	ug/l	0.4	33.23	Dup Fail
Ni	60	He	307933.98	99.3508	ug/l	0.7	14.43	
Ni	62	He	48987.19	99.5484	ug/l	2.0	14.29	
Cu	63	He	791756.86	86.2105	ug/l	0.4	7.54	
Cu	65	He	395214.33	86.1847	ug/l	0.5	7.33	
Zn	66	He	223141.38	178.7877	ug/l	0.9	3.71	
As	75	He	20102.80	25.4254	ug/l	1.2	3.31	
Mo	95	He	12503.63	2.7140	ug/l	1.3	8.91	
Mo	98	He	21745.30	2.7668	ug/l	0.4	6.75	
Ag	107	He	2502.44	0.1422	ug/l	3.3		< 5X MRL
Ag	109	He	2395.75	0.1394	ug/l	3.1		< 5X MRL
Cd	111	He	1961.45	0.9331	ug/l	3.4	9.45	
Cd	114	He	5566.60	1.0043	ug/l	0.5	7.64	
[Pb]	206	He	71584.89	5.3563	ug/l	1.6	10	
[Pb]	207	He	58170.34	5.1491	ug/l	2.2	10.1	
Pb	208	He	277026.13	5.2611	ug/l	1.8	9.21	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	420003.63	0.9	465634.11	90.2	59.55	125.44	
Sc	45	No Gas	9066200.75	0.6	9033699.36	100.36	59.55	125.44	
Ge	72	H2	1634474.00	3.9	2007352.98	81.42	59.55	125.44	
Sc	45	He	203384.05	0.4	207415.29	98.06	59.55	125.44	
Ge	72	He	194584.37	0.6	208403.74	93.37	59.55	125.44	
In	115	He	2191137.72	0.6	2241849.28	97.74	59.55	125.44	
Lu	175	He	5498291.73	2.4	5577447.69	98.58	59.55	125.44	
Th	232	He	9333170.28	1.2	9174642.57	101.73	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name	KQ2411912-02
File Name	064_Spk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:41:32
Sample Type	Spike
Comment	5X
ISTD Ref FileName	003CALB.d
QC Ref File Name	062_ ARF.
Default Text	ÁLKLS NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	24321.6040	ug/l	5.1	549469684.83	800	239.65	Flag
Se	77	H2	200.3782	ug/l	0.8	62174.05	200	98.98	
Se	78	H2	204.3004	ug/l	0.8	197770.25	200	100.61	
Cr	52	He	317.0979	ug/l	1.9	1752814.97	80	254.82	Flag
Cr	53	He	285.3092	ug/l	0.6	197029.39	80	218	Flag
Ni	60	He	308.5920	ug/l	0.3	925098.75	200	111.31	
Ni	62	He	307.5469	ug/l	0.3	146363.91	200	110.64	
Cu	63	He	208.6632	ug/l	0.9	1853607.77	100	128.71	Flag
Cu	65	He	194.2117	ug/l	0.2	861462.29	100	114.12	
Zn	66	He	400.4450	ug/l	0.6	483385.80	200	114.08	
As	75	He	237.1415	ug/l	0.6	181270.22	200	105.43	
Mo	95	He	208.7568	ug/l	0.1	935253.82	200	102.89	
Mo	98	He	233.9243	ug/l	0.8	1788706.11	200	115.48	
Ag	107	He	19.9123	ug/l	1.0	337148.19	20	98.84	
Ag	109	He	19.8716	ug/l	1.5	329547.39	20	98.63	
Cd	111	He	21.9252	ug/l	0.5	44846.69	20	104.5	
Cd	114	He	21.1386	ug/l	0.4	113717.48	20	100.27	
[Pb]	206	He	222.8549	ug/l	1.2	2910071.06	200	108.47	
[Pb]	207	He	222.4532	ug/l	4.6	2455467.75	200	108.38	
Pb	208	He	222.2156	ug/l	2.7	11432458.29	200	108.22	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407791.58	1.1	465634.11	87.58	
Sc	45	No Gas	8865001.32	1.5	9033699.36	98.13	
Ge	72	H2	1645427.85	2.5	2007352.98	81.97	
Sc	45	He	196388.08	0.3	207415.29	94.68	
Ge	72	He	188254.08	0.5	208403.74	90.33	
In	115	He	2135294.84	0.6	2241849.28	95.25	
Lu	175	He	5380607.98	1.5	5577447.69	96.47	
Th	232	He	9180861.32	1.3	9174642.57	100.07	

Reference Sample Report

Sample Name	K2407891-014
File Name	065_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:44:02
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	26235.4653	ug/l	6.6	583104439.05	
Se	77	72	H2	0.7897	ug/l	6.6	1533.74	
Se	78	72	H2	1.3236	ug/l	3.8	1313.39	
Cr	52	72	He	58.4119	ug/l	0.9	333305.16	
Cr	53	72	He	57.4378	ug/l	2.0	41137.57	
Ni	60	72	He	49.7224	ug/l	1.6	153717.97	
Ni	62	72	He	49.9206	ug/l	1.9	24503.02	
Cu	63	72	He	112.4492	ug/l	1.0	1029624.85	
Cu	65	72	He	113.6019	ug/l	1.2	519361.19	
Zn	66	72	He	152.2950	ug/l	0.7	189526.44	
As	75	72	He	37.6144	ug/l	1.5	29646.32	
Mo	95	115	He	2.9149	ug/l	6.0	13429.89	
Mo	98	115	He	2.9433	ug/l	2.5	23157.22	
Ag	107	115	He	0.1764	ug/l	10.1	3095.87	
Ag	109	115	He	0.1635	ug/l	4.6	2805.81	
Cd	111	115	He	0.2773	ug/l	3.7	585.51	
Cd	114	115	He	0.3752	ug/l	3.0	2096.30	
[Pb]	206	175	He	8.2255	ug/l	1.2	109615.87	
[Pb]	207	175	He	7.9961	ug/l	1.0	90090.40	
Pb	208	175	He	8.0979	ug/l	0.8	425218.69	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	411383.93	1.7	465634.11	88.35	
Sc	45	No Gas	8723021.88	1.7	9033699.36	96.56	
Ge	72	H2	1660526.81	3.2	2007352.98	82.72	
Sc	45	He	202548.18	1.9	207415.29	97.65	
Ge	72	He	194016.44	0.7	208403.74	93.1	
In	115	He	2193312.07	2.0	2241849.28	97.83	
Lu	175	He	5485065.76	1.4	5577447.69	98.34	
Th	232	He	9230017.57	1.1	9174642.57	100.6	

Duplicate Sample Report

Sample Name	KQ2411912-03
File Name	066_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:46:37
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	065_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	568812599.62	25100.9810	ug/l	4.1	4.42	
Se	77	H2	1326.39	0.0694	ug/l	532.3		< 5X MRL
Se	78	H2	823.02	0.8128	ug/l	8.3		< 5X MRL
Cr	52	He	343427.29	59.3139	ug/l	0.7	1.53	
Cr	53	He	42058.63	57.8715	ug/l	1.5	0.75	
Ni	60	He	157968.24	50.3525	ug/l	0.9	1.26	
Ni	62	He	25057.14	50.3037	ug/l	0.5	0.76	
Cu	63	He	1089170.62	117.2218	ug/l	0.3	4.16	
Cu	65	He	544776.68	117.4250	ug/l	0.5	3.31	
Zn	66	He	174304.45	138.0193	ug/l	1.0	9.83	
As	75	He	29219.90	36.5357	ug/l	1.7	2.91	
Mo	95	He	9827.40	2.1459	ug/l	4.0	30.39	Dup Fail
Mo	98	He	16752.90	2.1445	ug/l	3.2	31.4	Dup Fail
Ag	107	He	3094.76	0.1775	ug/l	2.1		< 5X MRL
Ag	109	He	2969.18	0.1742	ug/l	1.1		< 5X MRL
Cd	111	He	599.84	0.2860	ug/l	0.9	3.12	
Cd	114	He	2142.31	0.3863	ug/l	1.9	2.9	
[Pb]	206	He	125791.14	9.3209	ug/l	2.0	12.48	
[Pb]	207	He	103859.40	9.1046	ug/l	3.3	12.96	
Pb	208	He	490458.46	9.2242	ug/l	2.1	13	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	426719.99	0.6	465634.11	91.64	59.55	125.44	
Sc	45	No Gas	8889262.70	0.9	9033699.36	98.4	59.55	125.44	
Ge	72	H2	1679057.85	2.7	2007352.98	83.65	59.55	125.44	
Sc	45	He	206830.00	1.6	207415.29	99.72	59.55	125.44	
Ge	72	He	196879.93	0.6	208403.74	94.47	59.55	125.44	
In	115	He	2177710.44	1.7	2241849.28	97.14	59.55	125.44	
Lu	175	He	5556370.61	2.5	5577447.69	99.62	59.55	125.44	
Th	232	He	9254009.45	1.4	9174642.57	100.87	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411912-04

File Name 067_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 11:49:11

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 065_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	21177.6302	ug/l	3.9	475798647.76	800	-632.23	Flag
Se	77	H2	191.9405	ug/l	1.7	62197.44	200	95.58	
Se	78	H2	194.7686	ug/l	1.9	196712.77	200	96.72	
Cr	52	He	130.5597	ug/l	0.7	745852.44	80	90.18	
Cr	53	He	128.7090	ug/l	1.3	91991.11	80	89.09	
Ni	60	He	244.4291	ug/l	0.2	756956.93	200	97.35	
Ni	62	He	243.7545	ug/l	0.6	119835.51	200	96.92	
Cu	63	He	188.2468	ug/l	1.8	1727361.95	100	75.8	
Cu	65	He	169.1802	ug/l	0.8	775188.81	100	55.58	Flag
Zn	66	He	305.1338	ug/l	0.4	380511.14	200	76.42	
As	75	He	228.6318	ug/l	0.8	180529.90	200	95.51	
Mo	95	He	206.8699	ug/l	1.3	929956.84	200	101.98	
Mo	98	He	229.6115	ug/l	2.9	1761518.96	200	113.33	
Ag	107	He	19.8031	ug/l	1.6	336446.66	20	98.13	
Ag	109	He	19.9851	ug/l	1.0	332586.42	20	99.11	
Cd	111	He	21.0944	ug/l	1.3	43295.40	20	104.09	
Cd	114	He	21.1593	ug/l	1.3	114217.46	20	103.92	
[Pb]	206	He	261.4328	ug/l	3.6	3489620.07	200	126.6	Flag
[Pb]	207	He	263.0950	ug/l	2.8	2969863.35	200	127.55	Flag
Pb	208	He	261.3977	ug/l	1.9	13750815.91	200	126.65	Flag

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	418955.21	0.7	465634.11	89.98	
Sc	45	No Gas	8811504.10	0.9	9033699.36	97.54	
Ge	72	H2	1717052.64	2.3	2007352.98	85.54	
Sc	45	He	195688.64	0.7	207415.29	94.35	
Ge	72	He	194465.47	0.6	208403.74	93.31	
In	115	He	2142789.10	1.2	2241849.28	95.58	
Lu	175	He	5501331.03	1.4	5577447.69	98.64	
Th	232	He	9260046.32	1.5	9174642.57	100.93	

Sample Report

Sample Name	K2407891-002
File Name	068SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:51:42
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	26541.9978	ug/l	5.8	597686447.36	
Se	77	72	H2	2.8527	ug/l	1.7	2174.81	
Se	78	72	H2	3.5234	ug/l	2.1	3475.36	
Cr	52	72	He	147.7662	ug/l	0.3	842814.41	
Cr	53	72	He	144.4879	ug/l	0.6	103077.34	
Ni	60	72	He	109.5357	ug/l	1.4	338758.46	
Ni	62	72	He	108.5177	ug/l	1.1	53282.06	
Cu	63	72	He	85.2168	ug/l	0.4	780969.17	
Cu	65	72	He	85.7464	ug/l	0.5	392392.23	
Zn	66	72	He	223.1993	ug/l	0.9	277964.68	
As	75	72	He	28.0079	ug/l	1.5	22096.26	
Mo	95	115	He	2.9657	ug/l	2.5	13353.15	
Mo	98	115	He	3.0313	ug/l	1.5	23284.01	
Ag	107	115	He	0.1279	ug/l	4.3	2203.49	
Ag	109	115	He	0.1286	ug/l	1.5	2161.27	
Cd	111	115	He	1.3152	ug/l	2.2	2701.72	
Cd	114	115	He	1.3654	ug/l	1.2	7389.65	
[Pb]	206	175	He	6.5667	ug/l	2.6	86928.63	
[Pb]	207	175	He	6.3065	ug/l	2.8	70583.94	
Pb	208	175	He	6.3719	ug/l	2.1	332388.86	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	410132.67	0.5	465634.11	88.08	
Sc	45	No Gas	8836919.93	2.1	9033699.36	97.82	
Ge	72	H2	1666983.37	2.8	2007352.98	83.04	
Sc	45	He	201776.37	0.2	207415.29	97.28	
Ge	72	He	194176.15	0.7	208403.74	93.17	
In	115	He	2141945.12	0.5	2241849.28	95.54	
Lu	175	He	5448967.28	2.6	5577447.69	97.7	
Th	232	He	9177848.82	2.4	9174642.57	100.03	

Sample Report

Sample Name	K2407891-003
File Name	069SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:54:17
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	27654.9905	ug/l	2.7	632908845.96	
Se	77	72	H2	2.6821	ug/l	5.5	2118.80	
Se	78	72	H2	3.5793	ug/l	2.4	3524.71	
Cr	52	72	He	162.7737	ug/l	0.7	930776.35	
Cr	53	72	He	159.5494	ug/l	1.2	114081.71	
Ni	60	72	He	112.3404	ug/l	0.7	348348.43	
Ni	62	72	He	112.7058	ug/l	2.4	55481.20	
Cu	63	72	He	89.1335	ug/l	1.0	818967.78	
Cu	65	72	He	90.1931	ug/l	1.3	413779.01	
Zn	66	72	He	206.1903	ug/l	0.4	257445.61	
As	75	72	He	28.8519	ug/l	0.5	22821.53	
Mo	95	115	He	4.3157	ug/l	3.1	19488.05	
Mo	98	115	He	4.4261	ug/l	1.1	34105.84	
Ag	107	115	He	0.1330	ug/l	1.8	2296.84	
Ag	109	115	He	0.1415	ug/l	3.7	2384.63	
Cd	111	115	He	1.1333	ug/l	2.4	2336.50	
Cd	114	115	He	1.1877	ug/l	1.0	6454.76	
[Pb]	206	175	He	6.4228	ug/l	1.1	85691.78	
[Pb]	207	175	He	6.1836	ug/l	2.0	69742.41	
Pb	208	175	He	6.2493	ug/l	0.9	328522.98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	411002.55	0.7	465634.11	88.27	
Sc	45	No Gas	8974505.75	0.9	9033699.36	99.34	
Ge	72	H2	1663283.51	3.2	2007352.98	82.86	
Sc	45	He	203367.42	1.6	207415.29	98.05	
Ge	72	He	194678.75	0.4	208403.74	93.41	
In	115	He	2149760.01	0.9	2241849.28	95.89	
Lu	175	He	5489583.95	1.2	5577447.69	98.42	
Th	232	He	9303068.82	1.0	9174642.57	101.4	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	070_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:57:24
Sample Type	CCV
Comment	—
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	268.0827	ug/l	4.3	5670568.81	107.23	
Se	77	72	H2	23.4641	ug/l	1.4	8852.64	93.86	
Se	78	72	H2	24.5310	ug/l	2.2	25013.64	98.12	
Cr	52	72	He	25.1638	ug/l	0.2	145415.21	100.66	
Cr	53	72	He	24.9338	ug/l	1.3	18225.21	99.74	
Ni	60	72	He	25.3069	ug/l	1.0	79087.19	101.23	
Ni	62	72	He	25.6426	ug/l	3.6	12725.89	102.57	
Cu	63	72	He	24.9844	ug/l	1.4	231251.32	99.94	
Cu	65	72	He	25.3553	ug/l	0.5	117186.14	101.42	
Zn	66	72	He	25.1351	ug/l	0.6	31684.73	100.54	
As	75	72	He	24.8283	ug/l	0.5	19770.08	99.31	
Mo	95	115	He	12.3915	ug/l	1.2	56456.79	99.13	
Mo	98	115	He	12.5598	ug/l	1.7	97653.65	100.48	
Ag	107	115	He	12.4608	ug/l	0.4	214495.38	99.69	
Ag	109	115	He	12.4879	ug/l	2.1	210518.72	99.9	
Cd	111	115	He	24.7033	ug/l	1.2	51362.73	98.81	
Cd	114	115	He	24.4998	ug/l	1.2	133969.44	98	
[Pb]	206	175	He	23.3428	ug/l	0.7	311905.73	93.37	
[Pb]	207	175	He	23.6528	ug/l	1.3	267218.47	94.61	
Pb	208	175	He	23.7044	ug/l	1.1	1248007.03	94.82	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	391576.86	1.8	465634.11	84.1	
Sc	45	No Gas	8287132.17	0.7	9033699.36	91.74	
Ge	72	H2	1732065.18	0.9	2007352.98	86.29	
Sc	45	He	192277.36	2.7	207415.29	92.7	
Ge	72	He	195958.38	0.3	208403.74	94.03	
In	115	He	2170696.42	1.2	2241849.28	96.83	
Lu	175	He	5503373.11	0.7	5577447.69	98.67	
Th	232	He	9288236.11	1.8	9174642.57	101.24	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	071_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 11:59:58
Sample Type	CCB
Comment	—
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1239	ug/l	8.4	9440.35	
Se	77	72	H2	-0.7647	ug/l	N/A	1097.04	
Se	78	72	H2	0.0135	ug/l	63.0	35.67	
Cr	52	72	He	-0.0036	ug/l	N/A	664.46	
Cr	53	72	He	-0.0287	ug/l	N/A	310.00	
Ni	60	72	He	0.0006	ug/l	1171.6	130.00	
Ni	62	72	He	0.0033	ug/l	1027.5	25.56	
Cu	63	72	He	-0.0014	ug/l	N/A	234.45	
Cu	65	72	He	-0.0041	ug/l	N/A	114.45	
Zn	66	72	He	0.0313	ug/l	60.9	147.78	
As	75	72	He	0.0115	ug/l	94.9	25.33	
Mo	95	115	He	0.0062	ug/l	28.2	54.44	
Mo	98	115	He	0.0103	ug/l	39.1	113.34	
Ag	107	115	He	0.0004	ug/l	117.7	37.78	
Ag	109	115	He	0.0001	ug/l	1652.9	23.33	
Cd	111	115	He	0.0084	ug/l	4.1	20.33	
Cd	114	115	He	0.0061	ug/l	7.1	56.33	
[Pb]	206	175	He	0.0018	ug/l	164.9	146.67	
[Pb]	207	175	He	0.0031	ug/l	37.3	122.22	
Pb	208	175	He	0.0026	ug/l	75.7	588.90	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	389144.94	0.3	465634.11	83.57	
Sc	45	No Gas	8052215.79	1.1	9033699.36	89.14	
Ge	72	H2	1723517.64	2.8	2007352.98	85.86	
Sc	45	He	190841.93	2.1	207415.29	92.01	
Ge	72	He	195566.60	0.7	208403.74	93.84	
In	115	He	2144129.02	0.5	2241849.28	95.64	
Lu	175	He	5474726.73	1.8	5577447.69	98.16	
Th	232	He	9116036.95	1.8	9174642.57	99.36	

Prep Blank (PB) Report

Sample Name	KQ2411912-05
File Name	072_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:06:43
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	2.7938	ug/l	7.6	47691.79	
Se	77	72	H2	-0.6785	ug/l	N/A	1162.37	
Se	78	72	H2	-0.0026	ug/l	N/A	20.00	
Cr	52	72	He	0.0787	ug/l	21.0	1142.27	
Cr	53	72	He	0.0512	ug/l	94.0	368.90	
Ni	60	72	He	0.0528	ug/l	16.9	294.45	
Ni	62	72	He	0.0676	ug/l	13.8	57.78	
Cu	63	72	He	0.0258	ug/l	16.1	487.79	
Cu	65	72	He	0.0214	ug/l	44.4	233.34	
Zn	66	72	He	0.1781	ug/l	25.3	333.34	
As	75	72	He	0.0038	ug/l	242.0	19.33	
Mo	95	115	He	0.0174	ug/l	9.4	107.78	
Mo	98	115	He	0.0298	ug/l	36.1	270.01	
Ag	107	115	He	-0.0014	ug/l	N/A	6.67	
Ag	109	115	He	0.0001	ug/l	578.2	24.44	
Cd	111	115	He	0.0026	ug/l	36.7	8.83	
Cd	114	115	He	0.1151	ug/l	4.5	664.35	Flag
[Pb]	206	175	He	0.0035	ug/l	28.5	170.00	
[Pb]	207	175	He	0.0046	ug/l	66.5	138.89	
Pb	208	175	He	0.0041	ug/l	13.4	664.46	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	324368.91	5.4	465634.11	69.66	
Sc	45	No Gas	5996824.62	7.5	9033699.36	66.38	
Ge	72	H2	1781405.00	3.1	2007352.98	88.74	
Sc	45	He	197233.68	1.1	207415.29	95.09	
Ge	72	He	196581.48	0.8	208403.74	94.33	
In	115	He	2208035.63	0.7	2241849.28	98.49	
Lu	175	He	5472496.87	2.4	5577447.69	98.12	
Th	232	He	9096957.78	1.1	9174642.57	99.15	

Sample Report

Sample Name K2407891-004

File Name 073SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:09:19

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	21731.5046	ug/l	3.5	515576157.29	
Se	77	72	H2	0.9994	ug/l	11.0	1677.75	
Se	78	72	H2	1.7605	ug/l	1.3	1826.44	
Cr	52	72	He	95.2238	ug/l	0.1	557575.59	
Cr	53	72	He	94.1868	ug/l	0.5	69066.91	
Ni	60	72	He	79.1118	ug/l	1.4	251097.86	
Ni	62	72	He	78.5460	ug/l	0.4	39582.03	
Cu	63	72	He	67.0313	ug/l	0.2	630419.38	
Cu	65	72	He	67.4291	ug/l	0.3	316654.84	
Zn	66	72	He	154.0932	ug/l	1.0	196935.43	
As	75	72	He	28.4656	ug/l	0.5	23044.48	
Mo	95	115	He	3.6963	ug/l	2.9	17222.25	
Mo	98	115	He	3.6713	ug/l	2.7	29186.58	
Ag	107	115	He	0.0753	ug/l	3.0	1356.73	
Ag	109	115	He	0.0841	ug/l	8.7	1471.19	
Cd	111	115	He	0.9133	ug/l	4.7	1942.62	
Cd	114	115	He	0.9624	ug/l	4.7	5398.55	
[Pb]	206	175	He	3.6331	ug/l	1.8	48923.88	
[Pb]	207	175	He	3.5278	ug/l	1.8	40158.85	
Pb	208	175	He	3.5685	ug/l	1.5	189330.70	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	419437.91	0.9	465634.11	90.08	
Sc	45	No Gas	9306778.52	1.0	9033699.36	103.02	
Ge	72	H2	1742424.51	3.3	2007352.98	86.8	
Sc	45	He	205756.34	1.3	207415.29	99.2	
Ge	72	He	199249.80	0.8	208403.74	95.61	
In	115	He	2217833.71	1.6	2241849.28	98.93	
Lu	175	He	5535129.36	1.5	5577447.69	99.24	
Th	232	He	9192620.91	1.4	9174642.57	100.2	

Sample Report

Sample Name	K2407891-005
File Name	074SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:11:54
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	22800.4108	ug/l	2.0	549671960.38	
Se	77	72	H2	0.0622	ug/l	195.9	1362.39	
Se	78	72	H2	0.8362	ug/l	3.7	871.02	
Cr	52	72	He	142.5998	ug/l	0.8	818631.76	
Cr	53	72	He	139.8472	ug/l	0.9	100422.68	
Ni	60	72	He	84.7817	ug/l	0.7	263949.83	
Ni	62	72	He	84.6249	ug/l	1.0	41831.81	
Cu	63	72	He	58.4240	ug/l	0.4	538979.21	
Cu	65	72	He	58.3987	ug/l	0.7	269005.15	
Zn	66	72	He	118.8629	ug/l	0.7	149026.90	
As	75	72	He	28.7957	ug/l	0.9	22864.94	
Mo	95	115	He	1.6964	ug/l	2.0	7859.66	
Mo	98	115	He	1.7128	ug/l	3.9	13525.54	
Ag	107	115	He	0.0552	ug/l	6.7	994.49	
Ag	109	115	He	0.0652	ug/l	9.0	1138.94	
Cd	111	115	He	0.5563	ug/l	1.5	1175.71	
Cd	114	115	He	0.6487	ug/l	1.3	3619.57	
[Pb]	206	175	He	2.6491	ug/l	0.4	36061.10	
[Pb]	207	175	He	2.5110	ug/l	1.1	28888.16	
Pb	208	175	He	2.5835	ug/l	1.1	138540.64	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	430268.27	1.2	465634.11	92.4	
Sc	45	No Gas	9453047.68	1.6	9033699.36	104.64	
Ge	72	H2	1724807.22	2.7	2007352.98	85.92	
Sc	45	He	205101.32	1.8	207415.29	98.88	
Ge	72	He	195439.60	1.1	208403.74	93.78	
In	115	He	2200722.54	2.3	2241849.28	98.17	
Lu	175	He	5589065.61	1.3	5577447.69	100.21	
Th	232	He	9254166.32	0.7	9174642.57	100.87	

Sample Report

Sample Name	K2407891-006
File Name	075SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:14:29
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	19505.3897	ug/l	4.6	461218781.67	
Se	77	72	H2	0.1038	ug/l	192.7	1349.39	
Se	78	72	H2	0.8545	ug/l	4.5	872.02	
Cr	52	72	He	89.5510	ug/l	1.4	514584.08	
Cr	53	72	He	87.8420	ug/l	0.5	63233.61	
Ni	60	72	He	77.6646	ug/l	0.9	241914.76	
Ni	62	72	He	77.9949	ug/l	1.0	38569.78	
Cu	63	72	He	47.9941	ug/l	1.1	443005.33	
Cu	65	72	He	48.0469	ug/l	2.0	221440.45	
Zn	66	72	He	110.7979	ug/l	1.6	138986.35	
As	75	72	He	17.8024	ug/l	0.7	14149.86	
Mo	95	115	He	1.3478	ug/l	5.5	6134.49	
Mo	98	115	He	1.3680	ug/l	3.5	10616.78	
Ag	107	115	He	0.0437	ug/l	6.1	778.91	
Ag	109	115	He	0.0449	ug/l	10.1	776.69	
Cd	111	115	He	0.6077	ug/l	3.7	1261.05	
Cd	114	115	He	0.6864	ug/l	0.8	3759.10	
[Pb]	206	175	He	2.4367	ug/l	0.9	33153.33	
[Pb]	207	175	He	2.3216	ug/l	2.4	26698.75	
Pb	208	175	He	2.3672	ug/l	0.8	126889.28	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	422497.55	0.4	465634.11	90.74	
Sc	45	No Gas	9272992.13	0.3	9033699.36	102.65	
Ge	72	H2	1691969.97	2.1	2007352.98	84.29	
Sc	45	He	202725.33	0.3	207415.29	97.74	
Ge	72	He	195531.41	0.7	208403.74	93.82	
In	115	He	2160432.91	0.8	2241849.28	96.37	
Lu	175	He	5584488.81	0.5	5577447.69	100.13	
Th	232	He	9227367.99	1.7	9174642.57	100.57	

Sample Report

Sample Name	K2407891-007
File Name	076SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:17:03
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	27682.1273	ug/l	5.6	670561271.13	
Se	77	72	H2	1.1884	ug/l	6.3	1669.75	
Se	78	72	H2	1.9110	ug/l	0.8	1902.78	
Cr	52	72	He	55.6650	ug/l	1.1	325157.03	
Cr	53	72	He	55.3060	ug/l	1.1	40560.67	
Ni	60	72	He	53.4723	ug/l	0.9	169211.38	
Ni	62	72	He	53.5480	ug/l	1.2	26903.30	
Cu	63	72	He	128.7790	ug/l	0.4	1206923.25	
Cu	65	72	He	129.9331	ug/l	0.3	608034.26	
Zn	66	72	He	167.5476	ug/l	0.4	213421.02	
As	75	72	He	52.6820	ug/l	0.6	42494.61	
Mo	95	115	He	2.9877	ug/l	2.8	13822.42	
Mo	98	115	He	2.9486	ug/l	1.4	23273.99	
Ag	107	115	He	0.2032	ug/l	3.7	3578.19	
Ag	109	115	He	0.2082	ug/l	3.2	3582.63	
Cd	111	115	He	0.3394	ug/l	1.8	718.69	
Cd	114	115	He	0.4327	ug/l	1.4	2422.68	
[Pb]	206	175	He	13.5968	ug/l	2.4	183013.73	
[Pb]	207	175	He	13.3125	ug/l	1.6	151513.55	
Pb	208	175	He	13.4246	ug/l	1.7	712033.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	438984.96	0.7	465634.11	94.28	
Sc	45	No Gas	9503905.46	1.0	9033699.36	105.21	
Ge	72	H2	1673796.22	1.4	2007352.98	83.38	
Sc	45	He	207839.34	0.8	207415.29	100.2	
Ge	72	He	198591.45	0.2	208403.74	95.29	
In	115	He	2200801.32	0.4	2241849.28	98.17	
Lu	175	He	5543332.42	1.5	5577447.69	99.39	
Th	232	He	9217822.57	1.8	9174642.57	100.47	

Sample Report

Sample Name	K2407891-008
File Name	077SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:19:39
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS
QC Analyte Table	NoUser

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	18612.8500	ug/l	3.8	443287253.50	
Se	77	72	H2	3.9640	ug/l	7.5	2521.53	
Se	78	72	H2	4.3919	ug/l	1.7	4336.23	
Cr	52	72	He	29.6543	ug/l	0.7	173957.76	
Cr	53	72	He	29.2300	ug/l	1.7	21646.89	
Ni	60	72	He	76.8077	ug/l	1.5	243573.44	
Ni	62	72	He	77.3117	ug/l	3.1	38928.37	
Cu	63	72	He	102.6287	ug/l	0.7	964191.87	
Cu	65	72	He	102.8130	ug/l	0.6	482303.35	
Zn	66	72	He	372.1747	ug/l	0.9	475064.67	
As	75	72	He	46.0310	ug/l	0.8	37220.34	
Mo	95	115	He	4.9347	ug/l	1.7	23073.69	
Mo	98	115	He	4.9769	ug/l	0.9	39711.52	
Ag	107	115	He	0.3103	ug/l	4.0	5508.74	
Ag	109	115	He	0.3142	ug/l	0.8	5456.49	
Cd	111	115	He	2.9468	ug/l	1.2	6286.52	
Cd	114	115	He	2.9284	ug/l	0.5	16444.63	
[Pb]	206	175	He	16.3389	ug/l	0.7	219407.98	
[Pb]	207	175	He	15.7358	ug/l	1.9	178657.43	
Pb	208	175	He	15.9723	ug/l	1.3	845107.94	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	445248.52	0.8	465634.11	95.62	
Sc	45	No Gas	9338828.24	0.8	9033699.36	103.38	
Ge	72	H2	1669953.16	2.8	2007352.98	83.19	
Sc	45	He	203657.41	0.1	207415.29	98.19	
Ge	72	He	199071.23	0.7	208403.74	95.52	
In	115	He	2226111.75	0.8	2241849.28	99.3	
Lu	175	He	5529813.25	0.6	5577447.69	99.15	
Th	232	He	9295737.15	0.4	9174642.57	101.32	

Sample Report

Sample Name	K2407891-009
File Name	078SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\081424A.b
Acq Time	2024-08-14 12:22:13
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	19781.2303	ug/l	5.2	474825065.58	
Se	77	72	H2	6.1035	ug/l	4.5	3230.64	
Se	78	72	H2	6.3930	ug/l	1.2	6398.21	
Cr	52	72	He	30.8780	ug/l	1.0	181572.17	
Cr	53	72	He	30.1110	ug/l	3.1	22343.36	
Ni	60	72	He	66.4352	ug/l	0.6	211233.52	
Ni	62	72	He	65.8343	ug/l	1.7	33232.07	
Cu	63	72	He	95.4180	ug/l	0.8	898716.73	
Cu	65	72	He	95.3593	ug/l	1.1	448465.99	
Zn	66	72	He	366.9104	ug/l	0.9	469526.39	
As	75	72	He	37.5224	ug/l	0.6	30420.32	
Mo	95	115	He	4.2101	ug/l	2.7	19493.60	
Mo	98	115	He	4.3073	ug/l	1.9	34032.40	
Ag	107	115	He	0.2991	ug/l	0.4	5259.75	
Ag	109	115	He	0.2968	ug/l	7.0	5100.83	
Cd	111	115	He	2.3615	ug/l	2.0	4988.58	
Cd	114	115	He	2.3754	ug/l	2.4	13210.08	
[Pb]	206	175	He	14.8862	ug/l	1.1	200376.41	
[Pb]	207	175	He	14.4017	ug/l	1.0	163905.92	
Pb	208	175	He	14.5673	ug/l	1.0	772632.11	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	441965.83	1.6	465634.11	94.92	
Sc	45	No Gas	9417420.18	1.0	9033699.36	104.25	
Ge	72	H2	1695420.94	2.5	2007352.98	84.46	
Sc	45	He	202810.71	1.1	207415.29	97.78	
Ge	72	He	199572.94	0.6	208403.74	95.76	
In	115	He	2204385.64	1.8	2241849.28	98.33	
Lu	175	He	5542874.64	0.9	5577447.69	99.38	
Th	232	He	9367263.61	1.2	9174642.57	102.1	

Sample Report

Sample Name K2407891-010

File Name 079SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:24:48

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	20016.1125	ug/l	3.0	473785403.39	
Se	77	72	H2	4.0311	ug/l	4.3	2597.21	
Se	78	72	H2	4.2658	ug/l	1.8	4302.55	
Cr	52	72	He	33.2426	ug/l	1.2	194762.86	
Cr	53	72	He	32.2912	ug/l	1.6	23858.69	
Ni	60	72	He	82.3079	ug/l	1.0	260804.08	
Ni	62	72	He	82.6705	ug/l	0.5	41587.82	
Cu	63	72	He	112.5907	ug/l	0.1	1056889.65	
Cu	65	72	He	113.1627	ug/l	0.9	530395.64	
Zn	66	72	He	388.6363	ug/l	0.8	495667.73	
As	75	72	He	49.8585	ug/l	1.2	40280.25	
Mo	95	115	He	5.3668	ug/l	1.6	24663.73	
Mo	98	115	He	5.5638	ug/l	1.0	43631.20	
Ag	107	115	He	0.3153	ug/l	1.2	5503.17	
Ag	109	115	He	0.3039	ug/l	4.1	5189.74	
Cd	111	115	He	2.4250	ug/l	2.2	5084.95	
Cd	114	115	He	2.4224	ug/l	1.9	13372.88	
[Pb]	206	175	He	18.5758	ug/l	1.0	248721.71	
[Pb]	207	175	He	18.0263	ug/l	0.2	204080.16	
Pb	208	175	He	18.2400	ug/l	0.7	962328.15	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	435420.73	1.2	465634.11	93.51	
Sc	45	No Gas	9285209.36	1.1	9033699.36	102.78	
Ge	72	H2	1706125.45	1.2	2007352.98	84.99	
Sc	45	He	209136.66	0.6	207415.29	100.83	
Ge	72	He	198903.27	0.3	208403.74	95.44	
In	115	He	2188249.20	1.8	2241849.28	97.61	
Lu	175	He	5514028.81	0.3	5577447.69	98.86	
Th	232	He	9485393.82	1.6	9174642.57	103.39	

Sample Report

Sample Name K2407891-011

File Name 080SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:27:23

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	8963.8281	ug/l	3.2	205446000.73	
Se	77	72	H2	-0.5727	ug/l	N/A	1176.38	
Se	78	72	H2	0.0880	ug/l	1.5	113.00	
Cr	52	72	He	17.6906	ug/l	1.6	104880.70	
Cr	53	72	He	17.4892	ug/l	1.4	13190.65	
Ni	60	72	He	11.7839	ug/l	2.3	37775.69	
Ni	62	72	He	12.0629	ug/l	2.0	6142.25	
Cu	63	72	He	75.1276	ug/l	1.0	711479.12	
Cu	65	72	He	75.5605	ug/l	0.8	357308.57	
Zn	66	72	He	44.1799	ug/l	0.0	56941.77	
As	75	72	He	1.1314	ug/l	1.7	938.36	
Mo	95	115	He	0.7973	ug/l	4.9	3799.35	
Mo	98	115	He	0.8099	ug/l	6.1	6572.43	
Ag	107	115	He	0.0119	ug/l	15.0	244.45	
Ag	109	115	He	0.0128	ug/l	21.9	246.67	
Cd	111	115	He	0.0538	ug/l	4.3	119.67	
Cd	114	115	He	0.1587	ug/l	1.8	926.20	
[Pb]	206	175	He	0.9740	ug/l	1.2	13491.51	
[Pb]	207	175	He	0.9726	ug/l	1.2	11375.38	
Pb	208	175	He	0.9752	ug/l	0.5	53196.28	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	417104.24	2.6	465634.11	89.58	
Sc	45	No Gas	8993548.25	3.2	9033699.36	99.56	
Ge	72	H2	1750139.31	2.6	2007352.98	87.19	
Sc	45	He	199338.11	0.4	207415.29	96.11	
Ge	72	He	200651.88	0.6	208403.74	96.28	
In	115	He	2255145.32	1.4	2241849.28	100.59	
Lu	175	He	5653751.72	0.9	5577447.69	101.37	
Th	232	He	9397522.36	1.2	9174642.57	102.43	

Sample Report

Sample Name K2407891-012

File Name 081SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:29:58

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	17669.4791	ug/l	6.9	417517503.41	
Se	77	72	H2	-0.2792	ug/l	N/A	1223.71	
Se	78	72	H2	0.3019	ug/l	8.7	320.33	
Cr	52	72	He	52.2681	ug/l	0.2	304520.38	
Cr	53	72	He	52.3372	ug/l	1.2	38295.59	
Ni	60	72	He	32.5385	ug/l	1.3	102734.65	
Ni	62	72	He	31.3132	ug/l	2.6	15700.59	
Cu	63	72	He	114.8188	ug/l	0.8	1073160.30	
Cu	65	72	He	115.3348	ug/l	0.3	538269.92	
Zn	66	72	He	71.8796	ug/l	0.6	91371.37	
As	75	72	He	2.6148	ug/l	2.7	2119.14	
Mo	95	115	He	1.5439	ug/l	6.8	7233.84	
Mo	98	115	He	1.5610	ug/l	1.3	12473.60	
Ag	107	115	He	0.0957	ug/l	7.9	1720.10	
Ag	109	115	He	0.0997	ug/l	0.7	1746.77	
Cd	111	115	He	0.1083	ug/l	1.7	234.17	
Cd	114	115	He	0.2358	ug/l	2.0	1345.72	
[Pb]	206	175	He	2.2314	ug/l	1.9	30749.55	
[Pb]	207	175	He	2.1927	ug/l	0.6	25532.28	
Pb	208	175	He	2.1981	ug/l	0.7	119322.40	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	420265.15	1.3	465634.11	90.26	
Sc	45	No Gas	9274754.36	1.8	9033699.36	102.67	
Ge	72	H2	1684053.09	1.8	2007352.98	83.89	
Sc	45	He	203017.63	0.8	207415.29	97.88	
Ge	72	He	198050.26	0.4	208403.74	95.03	
In	115	He	2225061.35	0.5	2241849.28	99.25	
Lu	175	He	5653880.75	1.0	5577447.69	101.37	
Th	232	He	9425481.95	1.8	9174642.57	102.73	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 082_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:40:05

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	248.1846	ug/l	5.7	5707866.30	99.27	
Se	77	72	H2	23.3070	ug/l	5.0	9405.27	93.23	
Se	78	72	H2	24.3115	ug/l	4.2	26486.84	97.25	
Cr	52	72	He	25.0758	ug/l	1.0	147762.76	100.3	
Cr	53	72	He	24.9498	ug/l	2.7	18596.72	99.8	
Ni	60	72	He	25.0167	ug/l	0.9	79725.32	100.07	
Ni	62	72	He	25.3823	ug/l	1.8	12843.75	101.53	
Cu	63	72	He	24.8932	ug/l	0.9	234942.29	99.57	
Cu	65	72	He	24.8509	ug/l	0.9	117120.61	99.4	
Zn	66	72	He	24.9884	ug/l	1.3	32120.06	99.95	
As	75	72	He	24.5665	ug/l	1.6	19946.62	98.27	
Mo	95	115	He	12.3650	ug/l	0.6	57111.27	98.92	
Mo	98	115	He	12.3414	ug/l	0.1	97279.28	98.73	
Ag	107	115	He	12.3401	ug/l	0.8	215316.74	98.72	
Ag	109	115	He	12.2719	ug/l	1.3	209728.70	98.18	
Cd	111	115	He	24.4220	ug/l	0.7	51474.38	97.69	
Cd	114	115	He	24.1386	ug/l	1.2	133804.64	96.55	
[Pb]	206	175	He	23.6888	ug/l	1.1	313438.61	94.76	
[Pb]	207	175	He	23.4789	ug/l	1.4	262670.40	93.92	
Pb	208	175	He	23.6450	ug/l	1.1	1232756.21	94.58	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	427324.62	0.3	465634.11	91.77	
Sc	45	No Gas	9008517.98	1.4	9033699.36	99.72	
Ge	72	H2	1852465.97	3.9	2007352.98	92.28	
Sc	45	He	195149.21	1.9	207415.29	94.09	
Ge	72	He	199821.51	0.5	208403.74	95.88	
In	115	He	2200346.72	0.7	2241849.28	98.15	
Lu	175	He	5449730.06	0.6	5577447.69	97.71	
Th	232	He	9073958.20	0.7	9174642.57	98.9	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 083_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:42:40

Sample Type CCB

Comment —

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.0859	ug/l	7.2	9450.36	
Se	77	72	H2	-0.6968	ug/l	N/A	1180.04	
Se	78	72	H2	0.0013	ug/l	694.6	24.67	
Cr	52	72	He	-0.0101	ug/l	N/A	634.46	
Cr	53	72	He	0.2599	ug/l	26.1	522.24	
Ni	60	72	He	-0.0005	ug/l	N/A	127.78	
Ni	62	72	He	0.0003	ug/l	1214.9	24.44	
Cu	63	72	He	-0.0006	ug/l	N/A	244.45	
Cu	65	72	He	-0.0051	ug/l	N/A	111.11	
Zn	66	72	He	0.0265	ug/l	57.2	143.34	
As	75	72	He	0.0099	ug/l	111.1	24.33	
Mo	95	115	He	0.0008	ug/l	258.7	30.00	
Mo	98	115	He	0.0059	ug/l	69.2	80.00	
Ag	107	115	He	0.0005	ug/l	166.5	38.89	
Ag	109	115	He	0.0008	ug/l	164.2	36.67	
Cd	111	115	He	0.0061	ug/l	22.5	15.67	
Cd	114	115	He	0.0069	ug/l	28.9	60.83	
[Pb]	206	175	He	0.0007	ug/l	200.6	133.34	
[Pb]	207	175	He	0.0022	ug/l	118.6	112.22	
Pb	208	175	He	0.0013	ug/l	65.2	522.23	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	415159.92	2.3	465634.11	89.16	
Sc	45	No Gas	8788284.93	0.7	9033699.36	97.28	
Ge	72	H2	1817573.75	0.9	2007352.98	90.55	
Sc	45	He	195421.24	0.4	207415.29	94.22	
Ge	72	He	197671.20	1.1	208403.74	94.85	
In	115	He	2151898.61	0.9	2241849.28	95.99	
Lu	175	He	5485605.61	1.7	5577447.69	98.35	
Th	232	He	9151026.11	2.3	9174642.57	99.74	

Sample Report

Sample Name K2407891-013

File Name 084SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:45:16

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	9737.7728	ug/l	4.0	219697217.94	
Se	77	72	H2	-0.4189	ug/l	N/A	1233.38	
Se	78	72	H2	0.1198	ug/l	5.9	146.33	
Cr	52	72	He	28.2795	ug/l	0.7	167667.72	
Cr	53	72	He	27.8245	ug/l	2.7	20840.41	
Ni	60	72	He	16.1517	ug/l	0.6	51864.35	
Ni	62	72	He	16.3547	ug/l	2.6	8340.97	
Cu	63	72	He	59.9277	ug/l	0.2	569041.54	
Cu	65	72	He	60.0133	ug/l	0.3	284542.32	
Zn	66	72	He	39.9717	ug/l	0.7	51657.52	
As	75	72	He	1.2337	ug/l	1.1	1024.36	
Mo	95	115	He	0.8415	ug/l	1.4	4013.85	
Mo	98	115	He	0.8591	ug/l	2.3	6981.50	
Ag	107	115	He	0.0138	ug/l	19.2	278.89	
Ag	109	115	He	0.0150	ug/l	17.9	287.78	
Cd	111	115	He	0.0523	ug/l	5.2	116.50	
Cd	114	115	He	0.1485	ug/l	1.7	869.19	
[Pb]	206	175	He	1.0154	ug/l	1.8	14018.68	
[Pb]	207	175	He	1.0016	ug/l	3.7	11671.16	
Pb	208	175	He	1.0090	ug/l	1.0	54853.03	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407225.47	2.6	465634.11	87.46	
Sc	45	No Gas	8852132.70	2.2	9033699.36	97.99	
Ge	72	H2	1758483.02	2.1	2007352.98	87.6	
Sc	45	He	203206.48	1.0	207415.29	97.97	
Ge	72	He	201160.85	0.8	208403.74	96.52	
In	115	He	2257945.86	1.1	2241849.28	100.72	
Lu	175	He	5636747.00	2.0	5577447.69	101.06	
Th	232	He	9352310.07	0.5	9174642.57	101.94	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 085_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:53:17

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	45	No Gas	248.1914	ug/l	6.3	5571406.72	99.28	
Se	77	72	H2	23.2676	ug/l	1.6	9246.51	93.07	
Se	78	72	H2	24.5028	ug/l	1.6	26286.56	98.01	
Cr	52	72	He	25.1196	ug/l	1.3	146448.29	100.48	
Cr	53	72	He	25.0477	ug/l	1.6	18469.89	100.19	
Ni	60	72	He	24.9735	ug/l	0.6	78741.91	99.89	
Ni	62	72	He	24.2014	ug/l	1.4	12117.67	96.81	
Cu	63	72	He	25.1177	ug/l	0.6	234548.62	100.47	
Cu	65	72	He	24.8361	ug/l	0.9	115811.59	99.34	
Zn	66	72	He	24.7471	ug/l	1.3	31474.44	98.99	
As	75	72	He	24.8667	ug/l	1.4	19976.33	99.47	
Mo	95	115	He	12.6554	ug/l	0.8	56868.27	101.24	
Mo	98	115	He	12.6823	ug/l	0.7	97260.62	101.46	
Ag	107	115	He	12.5650	ug/l	0.9	213311.87	100.52	
Ag	109	115	He	12.4643	ug/l	0.9	207260.11	99.71	
Cd	111	115	He	24.7951	ug/l	1.4	50846.82	99.18	
Cd	114	115	He	24.6935	ug/l	0.8	133181.80	98.77	
[Pb]	206	175	He	23.3569	ug/l	0.7	308996.11	93.43	
[Pb]	207	175	He	23.4123	ug/l	1.1	261875.55	93.65	
Pb	208	175	He	23.5319	ug/l	0.7	1226649.81	94.13	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	424574.85	1.9	465634.11	91.18	
Sc	45	No Gas	8795318.54	2.8	9033699.36	97.36	
Ge	72	H2	1822074.65	1.8	2007352.98	90.77	
Sc	45	He	197301.58	0.2	207415.29	95.12	
Ge	72	He	197697.63	0.3	208403.74	94.86	
In	115	He	2140857.69	0.5	2241849.28	95.5	
Lu	175	He	5448838.26	1.2	5577447.69	97.69	
Th	232	He	8928933.20	0.8	9174642.57	97.32	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 086_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\081424A.b

Acq Time 2024-08-14 12:55:52

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	45	No Gas	0.1009	ug/l	10.3	9559.30	
Se	77	72	H2	-0.7605	ug/l	N/A	1137.37	
Se	78	72	H2	0.0026	ug/l	117.5	25.67	
Cr	52	72	He	-0.0037	ug/l	N/A	660.02	
Cr	53	72	He	0.2260	ug/l	18.7	490.01	
Ni	60	72	He	0.0032	ug/l	218.5	137.78	
Ni	62	72	He	0.0032	ug/l	866.2	25.56	
Cu	63	72	He	-0.0022	ug/l	N/A	225.56	
Cu	65	72	He	-0.0050	ug/l	N/A	110.00	
Zn	66	72	He	0.0347	ug/l	64.1	151.11	
As	75	72	He	0.0188	ug/l	19.3	31.00	
Mo	95	115	He	0.0039	ug/l	25.2	44.45	
Mo	98	115	He	0.0048	ug/l	101.5	71.11	
Ag	107	115	He	0.0016	ug/l	125.4	57.78	
Ag	109	115	He	0.0008	ug/l	63.0	36.67	
Cd	111	115	He	0.0077	ug/l	30.1	19.17	
Cd	114	115	He	0.0076	ug/l	16.2	65.00	
[Pb]	206	175	He	0.0038	ug/l	43.8	171.11	
[Pb]	207	175	He	0.0044	ug/l	69.5	134.44	
Pb	208	175	He	0.0042	ug/l	46.9	662.23	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	407739.26	0.4	465634.11	87.57	
Sc	45	No Gas	8586408.83	0.9	9033699.36	95.05	
Ge	72	H2	1783833.85	2.4	2007352.98	88.86	
Sc	45	He	194250.79	0.2	207415.29	93.65	
Ge	72	He	194601.93	0.7	208403.74	93.38	
In	115	He	2160272.40	1.6	2241849.28	96.36	
Lu	175	He	5388201.04	1.8	5577447.69	96.61	
Th	232	He	9164491.53	1.3	9174642.57	99.89	

CVAA Mercury Soil Data Review Form

K-CVAA-04

Element:	Hg		
Analysis Lot #:	080524A HG4		
Starlims #:	849608		
Cal. STD/CCV Source:	HG4-9-U		
Pipette IDs:	HG-43188965/HG-39591307		
16mL Tube Lot #:	P7664876		
KMnO4:	HG4-11-G	Expiration Date:	7/29/2025
NH2OH-HCl/NaCl	HG4-11-H	Expiration Date:	7/29/2025
SnCl2/HCl:	HG4-11-K	Expiration Date:	7/29/2024

Service Request Numbers:

K2407840, K2407534, K2407891, K2407895

K2406875, K2406876 7471 LOD/LOQ

	Yes	No	NA
1) Appropriate standardization completed	X		
2) ICV within 10% of true value	X		
3) CCVs in control (+/- 10%)	X		
4) CCBs and or ICBs below MRL	X		
5) CCV/CCB check run every 10 samples	X		
6) All reported samples within calibration range	X		
7) Percent relative errors in control	X		
8) Calculations correct	X		

Comments:

Data reviewed against service request(s) to ensure no samples were omitted: JJ (Initials)

Primary Reviewed By: [signature] Date: 8/5/24

Secondary Reviewed By: [signature] Date: 8.5.24

Data Review Form

Instrument ID#: **K-CVAA-04**
DataFile Name: **R:\ICP\WIP\DATA\K-CVAA-04 (M-7600)\080524A HG4.csv**
RUNNO: **849608**

K2406875

No exceptions to report.

K2406876

No exceptions to report.

K2407534

No exceptions to report.

K2407840

No exceptions to report.

K2407891

No exceptions to report.

K2407895

No exceptions to report.

Primary Approver: 8/5/24
Secondary Approver: 8.5.24

CVAA Hg ANALYTICAL WORKSHEET

Method: 7471	Cal. Inter. Std* (100ppb): HG4-11-U 2nd Source Inter Std** (1ppm): HG4-11-N

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
1	Cal. Blk.	0.000	~	~		
2	Std 0.2*	0.200	~	(0.1-50mL)		
3	Std 0.5*	0.500	~	(0.25-50mL)		
4	Std 1.0*	1.000	~	(0.5-50mL)		
5	Std 5.0*	5.000	~	(2.5-50mL)		
6	Std 10.0*	10.000	~	(5.0-50mL)		
7	ICV1**	4.837	~	97%		
8	ICB1	-0.006	~			
9	LLICV1*	0.196	~	98%		
10	CCV1*	4.987	~	100%		
11	CCB1	-0.005	~			
12	KQ2410304-01	-0.005	~			
13	KQ2410304-02	4.821	~	96%		
14	KQ2410304-03	4.817	~	96%		
15	K2406875-010	0.039	~	78%		LOD
16	K2406876-010	0.196	~	98%		LOQ
17	KQ2411786-03	-0.002	~			
18	KQ2411786-04	4.817	~	96%		
19	K2407840-001	0.253	~			
20	KQ2411786-01	0.307	~			
21	KQ2411786-02	4.756	~	90%		
22	CCV2	4.873	~	97%		
23	CCB2	-0.005	~			
24	K2407840-001A	5.028	~	96%		
25	K2407840-002	0.285	~			
26	K2407840-003	0.308	~			
27	K2407840-004	0.282	~			
28	KQ2411974-01	-0.004	~			
29	KQ2411974-02	4.701	~	94%		
30	KQ2411974-03	4.679	~	94%		
31	K2407534-001	0.020	~			
32	KQ2411911-03	-0.001	~			

Comments:

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
33	KQ2411911-04	4.708	~	94%		
34	CCV3	4.859	~	97%		
35	CCB3	-0.003	~			
36	K2407891-001	0.307	~			
37	KQ2411911-01	0.490	~			
38	KQ2411911-02	4.808	~	90%		
39	K2407891-001A	5.178	~	97%		
40	K2407891-002	0.207	~			
41	K2407891-003	0.574	~			
42	K2407891-004	0.130	~			
43	K2407891-005	0.063	~			
44	K2407891-006	0.105	~			
45	K2407891-007	0.191	~			
46	CCV4	4.902	~	98%		
47	CCB4	-0.005	~			
48	K2407891-008	1.004	~			
49	K2407891-009	0.517	~			
50	K2407891-010	0.895	~			
51	K2407891-011	0.012	~			
52	K2407891-012	0.286	~			
53	K2407891-013	0.016	~			
54	K2407891-014	0.098	~			
55	KQ2411922-03	-0.001	~			
56	KQ2411922-04	4.737	~	95%		
57	K2407895-001	0.086	~			
58	CCV5	4.924	~	98%		
59	CCB5	-0.003	~			
60	KQ2411922-01	0.093	~			
61	KQ2411922-02	4.881	~	96%		
62	K2407895-001A	5.085	~	100%		
63	K2407895-002	0.060	~			
64	K2407895-003	0.089	~			

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	80-120%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	N/A
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCS	0.5mg/kg	0.02 mg/kg	80-120%	80-120%	20%	+/- 20%
7471B Tissue Dorm	0.316mg/kg	0.02 mg/kg	76-126%	80-120%	20%	MSA

[080524A HG4 7471] HG2.XLS

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg **DATA**

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
65	K2407895-004	0.121	~			
66	K2407895-005	0.162	~			
67	K2407895-006	0.157	~			
68	K2407895-007	0.191	~			
69	K2407895-008	0.214	~			
70	CCV6	4.861	~	97%		
71	CCB6	-0.003	~			
72	K2407895-009	0.107	~			
73	K2407895-010	0.452	~			
74	K2407895-011	0.448	~			
75	K2407895-012	0.466	~			
76	K2407895-013	2.350	~			
77	CCV7	4.896	~	98%		
78	CCB7	-0.004	~			
79						
80						
81						
82						
83						
84						
85						
86						
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	80-120%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	N/A
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCS	0.5mg/kg	0.02 mg/kg	80-120%	80-120%	20%	+/- 20%
7471B Tissue Dorm	0.316mg/kg	0.02 mg/kg	76-126%	80-120%	20%	MSA

Report Generated By Teledyne Leeman QuickTrace

Analyst: alkls.nouser

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\080524A HG4.wszf

Creation Date: 8/5/2024 8:47:55 AM

Comment:

Results

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
Calibration Blank				STD		0.000		165	12.65				
		1.0000					N/A						
Replicates	196.0	149.1	157.2	158.9									
Standard #1 (0.2 ug/L)				STD		0.200		1901	1.36	-3.04%			
		1.0000					N/A						
Replicates	1924.1	1917.2	1893.9	1867.2									
Standard #2 (0.5 ug/L)				STD		0.500		4537	0.58	-2.30%			
		1.0000					N/A						
Replicates	4522.0	4573.0	4538.2	4512.9									
Standard #3 (1 ug/L)				STD		1.000		8956	1.80	-1.76%			
		1.0000					N/A						
Replicates	9077.1	9082.4	8925.7	8740.5									
Standard #4 (5 ug/L)				STD		5.000		44925	1.77	0.04%			
		1.0000					N/A						
Replicates	45500.2	45504.1	44881.5	43814.8									
Standard #5 (10 ug/L)				STD		10.000		89666	1.86	0.02%			
		1.0000					N/A						
Replicates	90745.0	90911.9	89714.8	87292.6									
ICV1				ICV		4.837		43451	1.85				
		1.0000					96.74						
Replicates	44001.8	44038.7	43439.2	42324.4									
ICB1				ICB		-0.006		114	40.53				
		1.0000					N/A						
Replicates	93.9	142.9	113.0	108.0									
LLICV1				CRDL		0.196		1918	2.24				
		1.0000					97.92						
Replicates	1939.8	1934.8	1937.5	1858.8									

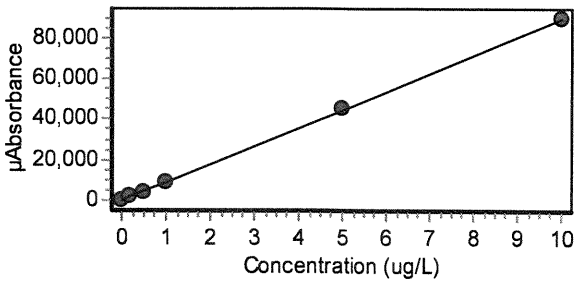
Calibration

Equation: Abs = 8948.694x + 165.304

R2: 0.99999 RSE: 2.43%

SEE: 113.8478

Flags:



Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
CCV1				CCV		4.987		44790	1.62				
			1.0000				99.74						
Replicates	45252.3	45348.6	44794.5	43766.5									
CCB1				CRDL		-0.005		122	28.93		Y		
			1.0000				-2.40						
Replicates	119.5	123.1	138.3	108.1									
KQ2410304-01				UNK		-0.005		123	52.76				
			1.0000				N/A						
Replicates	128.0	140.6	132.1	89.7									
KQ2410304-02				UNK		4.821		43308	1.60				
			1.0000				N/A						
Replicates	43773.1	43818.8	43304.3	42335.7									
KQ2410304-03				UNK		4.817		43274	0.44				
			1.0000				N/A						
Replicates	43075.5	43339.7	43503.3	43176.7									
K2406875-010				UNK		0.039		517	5.88				
			1.0000				N/A						
Replicates	542.0	514.5	520.2	491.7									
K2406876-010				UNK		0.196		1921	2.03				
			1.0000				N/A						
Replicates	1911.3	1974.3	1903.9	1896.4									
KQ2411786-03				UNK		-0.002		145	104.63				
			1.0000				N/A						
Replicates	123.6	133.8	154.1	170.1									
KQ2411786-04				UNK		4.816		43267	1.72				
			1.0000				N/A						
Replicates	43762.1	43795.6	43300.1	42208.6									
K2407840-001				UNK		0.253		2431	2.03				
			1.0000				N/A						
Replicates	2451.3	2448.7	2460.5	2362.2									
KQ2411786-01				UNK		0.307		2913	1.70				
			1.0000				N/A						
Replicates	2941.1	2955.2	2903.9	2850.4									
KQ2411786-02				UNK		4.756		42722	1.90				
			1.0000				N/A						
Replicates	43192.0	43348.0	42785.6	41562.0									
CCV2				CCV		4.873		43773	1.55				
			1.0000				97.46						
Replicates	44182.9	44305.0	43791.0	42814.5									
CCB2				CRDL		-0.005		121	25.03		Y		
			1.0000				-2.46						
Replicates	126.7	118.9	132.5	107.0									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407840-001A				UNK		5.028		45159	2.08				
		1.0000					N/A						
Replicates	45713.1	45899.3	45192.5	43832.6									
K2407840-002				UNK		0.285		2714	2.18				
		1.0000					N/A						
Replicates	2749.6	2753.7	2717.4	2634.2									
K2407840-003				UNK		0.308		2925	1.98				
		1.0000					N/A						
Replicates	2937.2	2972.6	2944.5	2846.5									
K2407840-004				UNK		0.282		2689	1.72				
		1.0000					N/A						
Replicates	2723.1	2715.1	2691.9	2627.2									
KQ2411974-01				UNK		-0.004		130	57.58				
		1.0000					N/A						
Replicates	149.2	102.1	129.1	139.6									
KQ2411974-02				UNK		4.701		42233	1.41				
		1.0000					N/A						
Replicates	42563.0	42713.8	42265.7	41388.2									
KQ2411974-03				UNK		4.679		42037	1.66				
		1.0000					N/A						
Replicates	42459.8	42570.5	42077.3	41041.8									
K2407534-001				UNK		0.020		349	3.75				
		1.0000					N/A						
Replicates	350.6	338.9	355.0	349.9									
KQ2411911-03				UNK		-0.001		153	158.63				
		1.0000					N/A						
Replicates	128.4	157.4	176.1	149.6									
KQ2411911-04				UNK		4.708		42292	1.61				
		1.0000					N/A						
Replicates	42689.8	42808.5	42357.4	41312.9									
CCV3				CCV		4.859		43648	1.49				
		1.0000					97.18						
Replicates	44055.0	44133.5	43681.9	42721.0									
CCB3				CCB		-0.003		135	33.44				
		1.0000					N/A						
Replicates	136.6	139.3	142.8	119.6									
K2407891-001				UNK		0.307		2916	2.07				
		1.0000					N/A						
Replicates	2955.7	2960.6	2908.6	2837.8									
KQ2411911-01				UNK		0.490		4552	2.00				
		1.0000					N/A						
Replicates	4633.4	4595.2	4550.4	4430.7									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
KQ2411911-02				UNK		4.808		43193	2.14			
		1.0000					N/A					
Replicates	43771.0	43879.6	43245.4	41874.2								
K2407891-001A				UNK		5.178		46499	1.92			
		1.0000					N/A					
Replicates	47034.6	47161.8	46578.1	45219.5								
K2407891-002				UNK		0.207		2015	0.64			
		1.0000					N/A					
Replicates	2011.4	2032.3	2012.6	2005.0								
K2407891-003				UNK		0.574		5306	1.42			
		1.0000					N/A					
Replicates	5362.0	5350.6	5309.8	5201.3								
K2407891-004				UNK		0.130		1324	3.94			
		1.0000					N/A					
Replicates	1352.2	1364.5	1318.4	1262.4								
K2407891-005				UNK		0.063		734	6.12			
		1.0000					N/A					
Replicates	715.3	750.8	772.6	695.3								
K2407891-006				UNK		0.105		1102	2.29			
		1.0000					N/A					
Replicates	1125.0	1104.3	1106.5	1073.2								
K2407891-007				UNK		0.191		1872	2.26			
		1.0000					N/A					
Replicates	1917.6	1878.4	1868.7	1823.9								
CCV4				CCV		4.902		44032	1.49			
		1.0000					98.04					
Replicates	44410.4	44533.3	44089.6	43095.6								
CCB4				CCB		-0.005		125	56.22			
		1.0000					N/A					
Replicates	136.3	104.5	106.9	151.2								
K2407891-008				UNK		1.004		9154	1.79			
		1.0000					N/A					
Replicates	9257.3	9272.2	9161.5	8923.7								
K2407891-009				UNK		0.517		4796	2.24			
		1.0000					N/A					
Replicates	4858.0	4881.1	4792.8	4651.0								
K2407891-010				UNK		0.895		8172	1.95			
		1.0000					N/A					
Replicates	8270.9	8292.1	8176.0	7950.8								
K2407891-011				UNK		0.012		272	9.36			
		1.0000					N/A					
Replicates	272.2	276.5	281.6	258.3								

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
K2407891-012				UNK		0.286		2725	2.29			
		1.0000					N/A					
Replicates	2746.6	2786.3	2720.4	2647.3								
K2407891-013				UNK		0.016		311	10.60			
		1.0000					N/A					
Replicates	325.1	305.8	322.8	292.1								
K2407891-014				UNK		0.098		1046	0.66			
		1.0000					N/A					
Replicates	1037.5	1048.5	1050.7	1047.3								
KQ2411922-03				UNK		-0.001		155	281.01			
		1.0000					N/A					
Replicates	124.0	192.7	153.7	150.5								
KQ2411922-04				UNK		4.737		42557	1.32			
		1.0000					N/A					
Replicates	42849.3	43011.3	42616.1	41752.3								
K2407895-001				UNK		0.086		931	3.58			
		1.0000					N/A					
Replicates	952.3	943.0	938.9	891.0								
CCV5				CCV		4.924		44227	1.60			
		1.0000					98.48					
Replicates	44687.0	44732.7	44273.8	43216.2								
CCB5				CCB		-0.003		137	36.06			
		1.0000					N/A					
Replicates	135.6	125.5	135.3	150.5								
KQ2411922-01				UNK		0.093		994	1.82			
		1.0000					N/A					
Replicates	1005.6	1008.8	978.7	984.2								
KQ2411922-02				UNK		4.881		43842	1.53			
		1.0000					N/A					
Replicates	44211.1	44376.7	43899.2	42882.4								
K2407895-001A				UNK		5.085		45667	0.37			
		1.0000					N/A					
Replicates	45502.2	45769.2	45848.5	45547.5								
K2407895-002				UNK		0.060		705	3.84			
		1.0000					N/A					
Replicates	685.1	733.5	706.4	696.2								
K2407895-003				UNK		0.089		960	0.88			
		1.0000					N/A					
Replicates	960.1	967.4	963.0	950.9								
K2407895-004				UNK		0.121		1249	1.54			
		1.0000					N/A					
Replicates	1240.6	1247.8	1272.4	1234.3								

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407895-005				UNK		0.162		1614	1.63				
			1.0000				N/A						
Replicates	1628.4	1601.2	1638.1	1587.1									
K2407895-006				UNK		0.157		1570	2.24				
			1.0000				N/A						
Replicates	1583.9	1574.3	1597.8	1525.4									
K2407895-007				UNK		0.191		1873	2.13				
			1.0000				N/A						
Replicates	1899.4	1885.4	1889.2	1819.5									
K2407895-008				UNK		0.214		2080	1.79				
			1.0000				N/A						
Replicates	2113.1	2104.7	2057.0	2044.0									
CCV6				CCV		4.861		43663	1.38				
			1.0000				97.22						
Replicates	44005.6	44114.2	43736.7	42795.5									
CCB6				CCB		-0.003		137	59.63				
			1.0000				N/A						
Replicates	151.0	151.1	127.3	117.5									
K2407895-009				UNK		0.107		1124	2.20				
			1.0000				N/A						
Replicates	1118.8	1152.7	1102.2	1121.7									
K2407895-010				UNK		0.452		4207	1.74				
			1.0000				N/A						
Replicates	4227.7	4269.2	4223.5	4106.0									
K2407895-011				UNK		0.448		4171	1.63				
			1.0000				N/A						
Replicates	4204.9	4229.2	4170.4	4080.2									
K2407895-012				UNK		0.466		4332	1.33				
			1.0000				N/A						
Replicates	4348.7	4376.3	4352.0	4251.2									
K2407895-013				UNK		2.350		21193	1.56				
			1.0000				N/A						
Replicates	21377.8	21447.5	21225.9	20720.9									
CCV7				CCV		4.896		43974	1.40				
			1.0000				97.91						
Replicates	44325.5	44432.0	44051.7	43088.2									
CCB7				CCB		-0.004		127	27.42				
			1.0000				N/A						
Replicates	142.5	119.0	122.8	125.0									

Preparation Information Benchsheet

Prep Run#: 441122
Team: Metals/SSOLADEY
Number of Copies to make: 2

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2410304-01	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2410304-02	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	KQ2410304-03	DLCS		7471B/Hg		Solid	0.5g	50.00mL	
4	K2406875-010	CVAA-04	.01	7471B/Hg		Soil	0.5g	50.00mL	
5	K2406876-010	CVAA-04	.09	7471B/Hg		Soil	0.5g	50.00mL	

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2410304-02 0.25mL KQ2410304-03 0.25mL

Name: K-MET Hg LOD LOQ 10ug/L Inventory ID 236605 Logbook Ref: HG4-11-T Expires On: 08/03/2024

K2406875-010 0.25mL K2406876-010 1.00mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	8/2/24 13:00	Started:	8/2/24 13:00
Finished:	8/2/24 13:30	Finished:	8/2/24 13:30
By:	SSOLADEY	By:	SSOLADEY
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	Hg-43188965	Digestion		
HG-39591307	Digestion			K-U72662	Digestion		

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: m Date: 8.5.24

★ DOD

Preparation Information Benchsheet

CVAA-04 7471 LOQ/LOD

Prep Run#: 441122
Team: Metals/SSOLADEY
Number of Copies to make: 2

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/8/24 07:06 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
							.5g → 50mL					
1	KQ2410304-01	MB			7471B / Hg	Solid						
2	KQ2410304-02	LCS * .25 HG4-11-N			7471B / Hg	Solid						96
3	KQ2410304-03	DLCS *			7471B / Hg	Solid						96
4	K2406875-010	CVAA-04 (LOD)	.01		7471B / Hg	Soil						78
5	K2406876-010	CVAA-04 (LOQ)	.09		7471B / Hg	Soil						98

make 10ppb Hg (HG4-11-T)

KMnO4 HG4-11-G

Spike 6875 w/ .25mL (looking for .05 ppb)

6876 w/ 1.0mL (looking for .2ppb)

Page 267 of 280

Comments: HG4-11-U B14TL27T95 13:00 - 13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 442430
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411786-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411786-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407840-001	C2-Q1	.01	7471B/Hg		Biosolids Solids	0.528g	50.00mL	TRICKMAN K-BALANCE-55
4	KQ2411786-01	K2407840-001 DUP	.01	7471B/Hg		Solid	0.566g	50.00mL	TRICKMAN K-BALANCE-55
5	KQ2411786-02	K2407840-001 MS	.01	7471B/Hg		Solid	0.548g	50.00mL	TRICKMAN K-BALANCE-55
6	K2407840-002	C2-Q2	.01	7471B/Hg		Biosolids Solids	0.597g	50.00mL	TRICKMAN K-BALANCE-55
7	K2407840-003	C2-Q3	.01	7471B/Hg		Biosolids Solids	0.567g	50.00mL	TRICKMAN K-BALANCE-55
8	K2407840-004	C2-Q4	.01	7471B/Hg		Biosolids Solids	0.561g	50.00mL	TRICKMAN K-BALANCE-55

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411786-02 0.25mL KQ2411786-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step: Weigh
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Step: Digestion
Started: 8/2/24 13:00
Finished: 8/2/24 13:52
By: SSOLADEY
Comments

Preparation Equipment

K-Block-Digester-14 Digestion
K-Block-Digester-14 Digestion
Hg-43188965 Digestion

IR Thermometer ID: IR03
Temperature Check Location 27

K-Block-Digester-14 Digestion Temperature 95 deg C
K-U72662 Digestion
HG-39591307 Digestion

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: mc Date: 8.5.24 Spike Witness: TRICKMAN Date:

Preparation Information Benchsheet

Prep Run#: 442430
Team: Metals/TRICKMAN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/31/24 07:01 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411786-03**	MB .25 H64-11-N			7471B / Hg	Solid						
2	**KQ2411786-04**	LCS *			7471B / Hg	Solid						96
3	**K2407840-001**	C2-Q1	.01		7471B / Hg	Biosolids Solids						
4	**KQ2411786-01**	K2407840-001 DUP	.01		7471B / Hg	Solid						
5	**KQ2411786-02**	K2407840-001 MS * 96+	.01		7471B / Hg P396	Solid						
6	**K2407840-002**	C2-Q2	.01		7471B / Hg	Biosolids Solids						
7	**K2407840-003**	C2-Q3	.01		7471B / Hg	Biosolids Solids						
8	**K2407840-004**	C2-Q4	.01		7471B / Hg	Biosolids Solids						

Comments: CalStd H64-11-U B14T27T95 13:00-13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442430 **Container Lot No:** 2108282 **Prep Due Date:** Aug-09-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407840-001	.01	Hg : 7471B/ DS TV .473	0.528g	.0240	TRICKMAN K-BALANCE-55
2	K2407840-001 DUP KQ2411786-01	.01	Hg : 7471B/	0.566g	.0271	TRICKMAN K-BALANCE-55
3	K2407840-001 MS KQ2411786-02	.01	Hg : 7471B/ TV .456	0.548g		TRICKMAN K-BALANCE-55
4	K2407840-002	.01	Hg : 7471B/	0.597g		TRICKMAN K-BALANCE-55
5	K2407840-003	.01	Hg : 7471B/	0.567g		TRICKMAN K-BALANCE-55
6	K2407840-004	.01	Hg : 7471B/	0.561g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time:	Received By:	Date/Time:
	7-31-24 07:08		1230 8/2/24

Preparation Information Benchsheet

Prep Run#: 442589
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411974-01	MB		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
2	KQ2411974-02	LCS		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
3	KQ2411974-03	DLCS		7471A/Hg		NonAq Liquid	0.5g	50.00mL	
4	K2407534-001	Sample	.01	7471A/Hg		NonAq Liquid	0.5010g	50.00mL	

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411974-02 0.25mL KQ2411974-03 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step: Weigh
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Step: Digestion
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	K-Balance-37	Weigh	Date Checked	080224 MS
K-U72662	Digestion			Hg-43188965	Digestion		
HG-39591307	Digestion						

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: _____ Date: 8.5.24 Spike Witness: MSOLADEY Date: _____

Preparation Information Benchsheet

Prep Run#: 442589
Team: Metals/MSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/2/24 10:49 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411974-01**	MB			7471A / Hg	NonAq Liquid	0.52					
2	**KQ2411974-02**	LCS .25 HG4-11-N			7471A / Hg	NonAq Liquid	↓					94
3	**KQ2411974-03**	DLCS			7471A / Hg	NonAq Liquid	↓					94
4	**K2407534-001**	Sample	.01		7471A / Hg	NonAq Liquid	0.501g					

K-Balance - 77 8/2/24 MW

Comments: Cal Std HG4-11-U BIHTL27T95 13:00 - 13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 442520
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411911-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411911-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407891-001	2024 KGMUSC S1	.04	7471B/Hg		Soil	0.564g	50.00mL	ZBIBI k-balance-50
4	KQ2411911-01	K2407891-001 DUP	.04	7471B/Hg		Solid	0.526g	50.00mL	ZBIBI k-balance-50
5	KQ2411911-02	K2407891-001 MS	.04	7471B/Hg		Solid	0.580g	50.00mL	ZBIBI k-balance-50
6	K2407891-002	2024 KGMUSC S2	.04	7471B/Hg		Soil	0.581g	50.00mL	ZBIBI k-balance-50
7	K2407891-003	2024 KGMUSC S3	.04	7471B/Hg		Soil	0.593g	50.00mL	ZBIBI k-balance-50
8	K2407891-004	2024 KGMUSC SP2 S1	.04	7471B/Hg		Soil	0.554g	50.00mL	ZBIBI k-balance-50
9	K2407891-005	2024 KGMUSC SP2 S2	.02	7471B/Hg		Soil	0.585g	50.00mL	ZBIBI k-balance-50
10	K2407891-006	2024 KGMUSC SP2 S3	.04	7471B/Hg		Soil	0.593g	50.00mL	ZBIBI k-balance-50
11	K2407891-007	2024 KGMLSH S3	.04	7471B/Hg		Soil	0.554g	50.00mL	ZBIBI k-balance-50
12	K2407891-008	2024 KGMWFSC S1	.04	7471B/Hg		Soil	0.595g	50.00mL	ZBIBI k-balance-50
13	K2407891-009	2024 KGMWFSC S2	.04	7471B/Hg		Soil	0.541g	50.00mL	ZBIBI k-balance-50
14	K2407891-010	2024 KGMWFSC S3	.04	7471B/Hg		Soil	0.586g	50.00mL	ZBIBI k-balance-50
15	K2407891-011	2024 KGM HJC S1	.04	7471B/Hg		Soil	0.598g	50.00mL	ZBIBI k-balance-50
16	K2407891-012	2024 KGM HJC S2	.04	7471B/Hg		Soil	0.545g	50.00mL	ZBIBI k-balance-50
17	K2407891-013	2024 KGM HJC S3	.04	7471B/Hg		Soil	0.558g	50.00mL	ZBIBI k-balance-50
18	K2407891-014	2024 KGMLSH S2	.04	7471B/Hg		Soil	0.516g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411911-02 0.25mL KQ2411911-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step: Weigh
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Step: Digestion
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Preparation Information Benchsheet

Prep Run#: 442520
Team: Metals/SSOLADEY

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	K-BlockDigester-15	Digestion	IR Thermometer ID: IR03	
K-BlockDigester-15	Digestion	Temperature	94 deg C	K-BlockDigester-15	Digestion	Temperature Check Location	27
K-U72662	Digestion			Hg-43188965	Digestion		
HG-39591307	Digestion						

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: _____ Date: 8.5.24 Spike Witness: ZBIBI Date: _____

Preparation Information Benchsheet

Prep Run#: 442520
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/1/24 10:50 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411911-03**	MB .25 HG4-11-N			7471B / Hg	Solid						
2	**KQ2411911-04**	LCS ✦			7471B / Hg	Solid						94
3	**K2407891-001**	2024 KGMUSC S1	.04		7471B / Hg	Soil						
4	**KQ2411911-01**	K2407891-001 DUP ✦	.04		7471B / Hg } non homogenous	Solid						
5	**KQ2411911-02**	K2407891-001 MS ✦ 90	.04		7471B / Hg } PS 97	Solid						
6	**K2407891-002**	2024 KGMUSC S2	.04		7471B / Hg	Soil						
7	**K2407891-003**	2024 KGMUSC S3	.04		7471B / Hg	Soil						
8	**K2407891-004**	2024 KGMUSC SP2 S1	.04		7471B / Hg	Soil						
9	**K2407891-005**	2024 KGMUSC SP2 S2	.02		7471B / Hg	Soil						
10	**K2407891-006**	2024 KGMUSC SP2 S3	.04		7471B / Hg	Soil						
11	**K2407891-007**	2024 KGMLSH S3	.04		7471B / Hg	Soil						
12	**K2407891-008**	2024 KGMWFSC S1	.04		7471B / Hg	Soil						
13	**K2407891-009**	2024 KGMWFSC S2	.04		7471B / Hg	Soil						
14	**K2407891-010**	2024 KGMWFSC S3	.04		7471B / Hg	Soil						
15	**K2407891-011**	2024 KGM HJC S1	.04		7471B / Hg	Soil						
16	**K2407891-012**	2024 KGM HJC S2	.04		7471B / Hg	Soil						
17	**K2407891-013**	2024 KGM HJC S3	.04		7471B / Hg	Soil						
18	**K2407891-014**	2024 KGMLSH S2	.04		7471B / Hg	Soil						

Cal B14T27T95

Cal Std
Comments: HG4-11-U B15TL27T94 13:00-13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442520 **Container Lot No:** 2206050 **Prep Due Date:** Aug-07-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407891-001	.04	Hg : 7471B/ PS TV .4413	0.564g	.0272 > 52% RPD	ZBIBI k-balance-50
2	K2407891-001 DUP KQ2411911-01	.04	Hg : 7471B/	0.526g	.0466 non homogenous	ZBIBI k-balance-50
3	K2407891-001 MS KQ2411911-02	.04	Hg : 7471B/ TV .431	0.580g		ZBIBI k-balance-50
4	K2407891-002	.04	Hg : 7471B/	0.581g		ZBIBI k-balance-50
5	K2407891-003	.04	Hg : 7471B/	0.593g		ZBIBI k-balance-50
6	K2407891-004	.04	Hg : 7471B/	0.554g		ZBIBI k-balance-50
7	K2407891-005	.02	Hg : 7471B/	0.585g		ZBIBI k-balance-50
8	K2407891-006	.04	Hg : 7471B/	0.593g		ZBIBI k-balance-50
9	K2407891-007	.04	Hg : 7471B/	0.554g		ZBIBI k-balance-50
10	K2407891-008	.04	Hg : 7471B/	0.595g		ZBIBI k-balance-50
11	K2407891-009	.04	Hg : 7471B/	0.541g		ZBIBI k-balance-50
12	K2407891-010	.04	Hg : 7471B/	0.586g		ZBIBI k-balance-50
13	K2407891-011	.04	Hg : 7471B/	0.598g		ZBIBI k-balance-50
14	K2407891-012	.04	Hg : 7471B/	0.545g		ZBIBI k-balance-50
15	K2407891-013	.04	Hg : 7471B/	0.558g		ZBIBI k-balance-50
16	K2407891-014	.04	Hg : 7471B/	0.516g		ZBIBI k-balance-50

Relinquished By:	Date/Time: 8/1/24 10:55	Received By:	Date/Time: 8/2/24 1230

Preparation Information Benchsheet

Prep Run#: 442534
Team: Metals/SSOLADEY
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411922-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411922-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407895-001	2024 KGM UJC S1	.02	7471B/Hg		Soil	0.557g	50.00mL	TRICKMAN K-BALANCE-55
4	KQ2411922-01	K2407895-001 DUP	.02	7471B/Hg		Solid	0.521g	50.00mL	TRICKMAN K-BALANCE-55
5	KQ2411922-02	K2407895-001 MS	.02	7471B/Hg		Solid	0.521g	50.00mL	TRICKMAN K-BALANCE-55
6	K2407895-002	2024 KGM UJC S2	.02	7471B/Hg		Soil	0.593g	50.00mL	TRICKMAN K-BALANCE-55
7	K2407895-003	2024 KGM UJC S3	.02	7471B/Hg		Soil	0.544g	50.00mL	TRICKMAN K-BALANCE-55
8	K2407895-004	2024 KGM USH S1	.02	7471B/Hg		Soil	0.569g	50.00mL	TRICKMAN K-BALANCE-55
9	K2407895-005	2024 KGM USH S2	.02	7471B/Hg		Soil	0.555g	50.00mL	TRICKMAN K-BALANCE-55
10	K2407895-006	2024 KGM USH S3	.02	7471B/Hg		Soil	0.528g	50.00mL	TRICKMAN K-BALANCE-55
11	K2407895-007	2024 KGMEFSC S1	.02	7471B/Hg		Soil	0.503g	50.00mL	TRICKMAN K-BALANCE-55
12	K2407895-008	2024 KGMEFSC S2	.02	7471B/Hg		Soil	0.536g	50.00mL	TRICKMAN K-BALANCE-55
13	K2407895-009	2024 KGMEFSC S3	.02	7471B/Hg		Soil	0.567g	50.00mL	TRICKMAN K-BALANCE-55
14	K2407895-010	2024 KGM LSC S1	.02	7471B/Hg		Soil	0.515g	50.00mL	TRICKMAN K-BALANCE-55
15	K2407895-011	2024 KGM LSC S2	.02	7471B/Hg		Soil	0.565g	50.00mL	TRICKMAN K-BALANCE-55
16	K2407895-012	2024 KGM LSC S3	.02	7471B/Hg		Soil	0.544g	50.00mL	TRICKMAN K-BALANCE-55
17	K2407895-013	2024 KGM LSH S1	.02	7471B/Hg		Soil	0.517g	50.00mL	TRICKMAN K-BALANCE-55

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236562 Logbook Ref: HG4-11-N Expires On: 09/01/2024

KQ2411922-02 0.25mL KQ2411922-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube 2206050 (230733) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)

Preparation Steps

Step: Weigh
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Step: Digestion
Started: 8/2/24 13:00
Finished: 8/2/24 13:30
By: SSOLADEY
Comments

Preparation Information Benchsheet

Prep Run#: 442534
Team: Metals/SSOLADEY

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 8/2/24 13:00

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	95 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	27	K-BlockDigester-15	Digestion	IR Thermometer ID: IR03	
K-BlockDigester-15	Digestion	Temperature	94 deg C	K-BlockDigester-15	Digestion	Temperature Check Location	27
Hg-43188965	Digestion			HG-39591307	Digestion		
K-U72662	Digestion						

Comments: Cal Std/CCV Source: HG4-11-U

Reviewed By: [signature] Date: 8.5.24 Spike Witness: TRICKMAN Date:

Preparation Information Benchsheet

Prep Run#: 442534
Team: Metals/TRICKMAN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 8/1/24 12:09 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411922-03**	MB .25 HG4-11-N			7471B / Hg	Solid						
2	**KQ2411922-04**	LCS			7471B / Hg	Solid						95
3	**K2407895-001**	2024 KGM UJC S1	.02		7471B / Hg	Soil						
4	**KQ2411922-01**	K2407895-001 DUP	.02		7471B / Hg	Solid						
5	**KQ2411922-02**	K2407895-001 MS 96	.02		7471B / Hg PS 100	Solid						
6	**K2407895-002**	2024 KGM UJC S2	.02		7471B / Hg	Soil						
7	**K2407895-003**	2024 KGM UJC S3	.02		7471B / Hg	Soil						
8	**K2407895-004**	2024 KGM USH S1	.02		7471B / Hg	Soil						
9	**K2407895-005**	2024 KGM USH S2	.02		7471B / Hg	Soil						
10	**K2407895-006**	2024 KGM USH S3	.02		7471B / Hg	Soil						
11	**K2407895-007**	2024 KGMEFSC S1	.02		7471B / Hg	Soil						
12	**K2407895-008**	2024 KGMEFSC S2	.02		7471B / Hg	Soil						
13	**K2407895-009**	2024 KGMEFSC S3	.02		7471B / Hg	Soil						
14	**K2407895-010**	2024 KGM LSC S1	.02		7471B / Hg	Soil						
15	**K2407895-011**	2024 KGM LSC S2	.02		7471B / Hg	Soil						
16	**K2407895-012**	2024 KGM LSC S3	.02		7471B / Hg	Soil						
17	**K2407895-013**	2024 KGM LSH S1	.02		7471B / Hg	Soil						

Cal B14TL27T95

Comments: CalStd HG4-11-U B15TL27T94 13:00-13:30

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 442534 **Container Lot No:** 2108282 **Prep Due Date:** Aug-07-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407895-001	.02	Hg : 7471B/	0.557g		TRICKMAN K-BALANCE-55
2	K2407895-001 DUP KQ2411922-01	.02	Hg : 7471B/	0.521g		TRICKMAN K-BALANCE-55
3	K2407895-001 MS KQ2411922-02	.02	Hg : 7471B/	0.521g		TRICKMAN K-BALANCE-55
4	K2407895-002	.02	Hg : 7471B/	0.593g		TRICKMAN K-BALANCE-55
5	K2407895-003	.02	Hg : 7471B/	0.544g		TRICKMAN K-BALANCE-55
6	K2407895-004	.02	Hg : 7471B/	0.569g		TRICKMAN K-BALANCE-55
7	K2407895-005	.02	Hg : 7471B/	0.555g		TRICKMAN K-BALANCE-55
8	K2407895-006	.02	Hg : 7471B/	0.528g		TRICKMAN K-BALANCE-55
9	K2407895-007	.02	Hg : 7471B/	0.503g		TRICKMAN K-BALANCE-55
10	K2407895-008	.02	Hg : 7471B/	0.536g		TRICKMAN K-BALANCE-55
11	K2407895-009	.02	Hg : 7471B/	0.567g		TRICKMAN K-BALANCE-55
12	K2407895-010	.02	Hg : 7471B/	0.515g		TRICKMAN K-BALANCE-55
13	K2407895-011	.02	Hg : 7471B/	0.565g		TRICKMAN K-BALANCE-55
14	K2407895-012	.02	Hg : 7471B/	0.544g		TRICKMAN K-BALANCE-55
15	K2407895-013	.02	Hg : 7471B/	0.517g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time: 8-1-24 1230	Received By:	Date/Time: 8/2/24